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A
COMPLETE SYSTEM
OF
ASTRONOMY;

BY THE

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C O N T E N T S.

INTRODUCTION.

<i>ON the Tables of the SUN</i> - - - - -	Page 2
<i>On the Tables of the MOON</i> - - - - -	23
<i>On the Days when ECLIPSES may be expected</i> - - - - -	56
<i>On ASTRONOMICAL REFRACTIONS</i> - - - - -	61
<i>Methods of finding the COEFFICIENTS of EQUATIONS</i> - - - - -	69
<i>On the Tables of MERCURY</i> - - - - -	76
<i>On the Tables of VENUS</i> - - - - -	82
<i>On the Tables of MARS</i> - - - - -	85
<i>On the Tables of JUPITER</i> - - - - -	91
<i>On the Tables of SATURN</i> - - - - -	101
<i>On the Tables of the GEORGIAN</i> - - - - -	105
<i>On the Tables of the Motions of JUPITER'S SATELLITES</i> - - - - -	111

TABLES.

<i>Tables of the SUN</i> - - - - -	(1)
<i>Tables of the MOON</i> - - - - -	(101)
<i>Tables of REFRACTION</i> - - - - -	(200)
<i>Tables of the SUN'S PARALLAX</i> - - - - -	(206)
<i>Tables of MERCURY</i> - - - - -	2
<i>Tables of VENUS</i> - - - - -	16
<i>Tables of MARS</i> - - - - -	28
<i>Tables of JUPITER</i> - - - - -	60
<i>Tables of SATURN</i> - - - - -	86
<i>Tables of the GEORGIAN</i> - - - - -	110
<i>Tables of the Motions of JUPITER'S SATELLITES</i> - - - - -	131

CONTENTS

PREFACE

On the Theory of the Sun	1
On the Theory of the Moon	2
On the Theory of the Planets	3
On the Theory of the Comets	4
On the Theory of the Stars	5
On the Theory of the Nebulae	6
On the Theory of the Galaxies	7
On the Theory of the Universe	8

TABLES

Table of the Sun	9
Table of the Moon	10
Table of the Planets	11
Table of the Comets	12
Table of the Stars	13
Table of the Nebulae	14
Table of the Galaxies	15
Table of the Universe	16

INTRODUCTION.

IF the Planets moved uniformly in circles about the Sun in the center, after ascertaining their periodic times, their angular velocities in any given time would be known; for the periodic time is to any given time, as 360° to the angle described in that time. Hence, if Tables were constructed for each planet, showing it's *angular motion* (which is here usually called simply its *motion*) for years, days, hours, minutes, and seconds; then if their places were once determined for any given instant, for instance, at the beginning of some one year, called the *Epoch*, their places at any other given time might be immediately found, by applying to their places at that epoch, their motions from that time to the given time. But as their motions are not uniform, Tables are constructed to show the difference between their *true* places and the places where they would have been if their motions had been uniform, or their *mean* places. If therefore you first calculate the *mean* place, and then apply that difference, you get the *true* place. This difference is made up of several parts, called *Equations*; and these arise from the elliptical form of the orbits (Vol. I. ch. 12.), and the mutual attractions of the bodies (Vol. II. ch. 37.)

ON THE TABLES OF THE SUN.

These Tables were constructed by M. DE LAMBRE, from the Observations of Dr. MASKELYNE, and the Theory of M. LAPLACE. See *Les Mémoires de l'Académie de Berlin*, for 1784, 1785.

On the Construction of the SOLAR TABLES.

TABLE I. contains the epochs of the mean longitude of the Sun, and of it's perigee, with the Arguments of the inequalities arising from the action of the Planets. These epochs are calculated for the mean noon of the first of January for each year, according to the civil account. The First Column contains the years. The Second Column contains the mean longitudes, as deduced from nearly two thousand observations. The epoch for 1752 was determined by seven hundred and twenty of Dr. BRADLEY's Observations, taken from the first volume published by Dr. HORNSBY. The epoch for 1802 was fixed from nearly four hundred passages of the Sun over the meridian observed from 1798 to 1802, at *Greenwich* and *Paris*; and from the four equinoxes observed by the author with BORDA's circle. From a comparison of the epochs of 1752 and 1802, the mean secular motion was fixed at $0^{\circ}. 0^{\circ}. 45'. 45''$, less by $15''$ than in the author's former Tables. He therefore diminished the secular motion of the equinoxes by the same quantity; and this agreed very well with the observations made both upon the Sun and the Stars; which shows that the Sun's motion in respect to the ecliptic had been very well determined, and that it was the precession of the equinoxes which had been incorrectly fixed. The author makes the annual precession $50'',1$. Column the Third gives the longitude of the perigee. Hitherto the epochs have been given for the apogee; but as they must be taken for the perigee for Comets, DE LA CAILLE proposed, that, for the sake of uniformity, the same should be adopted for all the bodies*; and accordingly it is here
adopted

* In the Tables of the Planets the epochs are for the apogee, the suggestion not having been attended to at the time when these Tables were constructed.

adopted for the Sun. Column the Fourth gives the argument M (mean anomaly of the Moon) of the *Lunar* equation*. And here, as in the following Arguments, the circle is supposed to be divided into a thousand equal parts, instead of degrees; so that ten parts answer to $3^{\circ}.36'$, and so in proportion. For instance; for the beginning of the year 1800, the mean anomaly M of the Moon is $4^{\circ}.3^{\circ}.23'.37'',6$; hence, $3^{\circ}.36' : 4^{\circ}.3^{\circ}.23'.37'',6 :: 10 : 342$ the value of M for 1800 †.

If A' be the Argument of the Lunar equation, M the mean anomaly of the Moon, m that of the Sun, A the mean Argument; then,

$$A' = A - 5,86 \sin. m + 3,726 \sin. (2A - M) + 17,5 \sin. M \\ + 0,51 \sin. 2M + 1,65 \sin. 2A.$$

This correction of the mean motion is applied, otherwise the error would have sometimes amounted to $1'',2$; for the greatest sum of the inequalities of the Sun and Moon is about 8° .

As the term $-5,86 \sin. m$ will not sensibly vary for the same days in different years, it has been united to the mean motion of A for days and months. The following terms, depending both upon A and M , are contained in Table VI, and found by a double entry. The maximum is 22 parts, which is added to all the numbers in Table VI, in order to render them additive; and the same quantity is taken from the epochs of A .

The Argument A in the Fifth Column, is the mean longitude of the Moon — that of the Sun, diminished by 22; the whole circle being supposed to be divided into a thousand equal parts.

The

* It is not the Earth, but the center of gravity of the Earth and Moon which describes the ellipse about the Sun; the Earth is therefore sometimes forwarder than the center of gravity, or the motion as computed for an ellipse, and sometimes behind it; and the angle which the line joining the center of gravity and the center of the Earth forms at the Sun, is the *Lunar* equation, showing how much the Earth is before or behind the center of gravity. This is therefore one correction to be applied to the elliptic motion.

† In Table V. it will be more exact to take $M=18$ for 12 hours, and not 17 according to our author; hence, the numbers M in Table I. must all be increased by 1.

The Argument *B* is the heliocentric longitude of the *Earth*; *C* is that of *Venus*; *D* is that of *Mars*; *E* is that of *Jupiter*; *F* is that of *Saturn*. These Arguments give the effects of the disturbing forces of the respective Planets. *N* is the supplement of the longitude of the node. In all these Arguments, the circle is divided into a thousand equal parts, instead of degrees, minutes, and seconds.

TABLE II. is to find the epochs of the same quantities for twenty-six centuries *before* the beginning of the nineteenth century, and for twenty centuries *after*. The latter part contains the motions for the respective centuries, and the former contains the complement of the motions to twelve signs; by which means they all become additive to the epochs for the nineteenth century. In the former case, the quantities are put down for the Gregorian style for the first three centuries; for that century they are put down for both the Gregorian and Julian style, and afterwards for the Julian. The supplements contain the motions for a period up to ten thousand from the nineteenth century, in order to extend the epochs.

EXAMPLE I. *To find the Epochs for the Year 2375.*

First, $2375 - 1875 = 500$.

Tab. I. . . . 1875 -	^s 9. ^o 10. 43. 27,4	^s 9. ^o 10. 46. 26	478	781	280	&c.
Tab. II. + 500 -	11. 29. 52. 11,7	0. 8. 35. 55	616	130	0	&c.
Epochs required -	9. 10. 35. 39,1	9. 19. 22. 21	94	911	280	&c.

EXAMPLE II. *To find the Epochs for the Year 1596.*

First, $1896 - 1596 = 300$. As this happens after the Gregorian reformation, we take - 300 G.

Tab. I. . . 1896 -	^s 9. ^o 10. 38. 16,8	^s 9. ^o 11. 8. 6	835	512	280	&c.
Tab. II. - 300 G.	11. 29. 41. 1,7	11. 24. 50. 27	414	508	999	&c.
Epochs required -	9. 10. 19. 18,5	9. 5. 58. 33	249	20	279	&c.

EXAMPLE

EXAMPLE III. *To find the Epochs for the Year 745 before the Christian æra.*

As we must begin with the epochs within the nineteenth century, we must add 2600 years to 745 before CHRIST, which gives 1855. Hence,

Tab. I. . . 1855 -	^s 9. ^o 10. 34. 18,3	^s 9. ^o 10. 25. 48	368	411	279	&c.
Tab. II.—2600 -	11. 22. 0. 10,0	10. 15. 17. 16	81	224	978	&c.
Epochs required -	9. 2. 34. 28,3	7. 25. 43. 4	449	635	257	&c.

In Tables I, II, the precession of the equinox in longitude is supposed to be 50",1 in a year, invariably; and the motion of the perigee to be proportionable to the time. Table III. therefore serves to correct the errors of these suppositions. The corrections of the mean longitude, of the perigee, and of the mean anomaly, are always additive. The anomaly is the difference of the other two, and renders the correction of the perigee unnecessary in the calculations of the place of the Sun.

The correction of the obliquity is to be applied according to the sign, to the mean obliquity 23°. 27'. 57", for the beginning of the year 1800.

TABLE IV. contains the mean motions for every day in the year. The last column contains the fraction of a year. It is thus formed: The mean motion of the Sun for one day is 59'. 8",33; and this multiplied by 1, 2, 3, &c. to 365, you obtain the motions from the beginning of the year to the commencement of every day. In like manner for the other quantities in the Table.

TABLE V. contains the mean motion of the Sun for hours, minutes, and seconds; including the Arguments *M*, *A*, *B*, *C*.

Thus, by means of Tables I, II, III, IV, V, you may find the *mean* place of the Sun for any given time, by adding to the epochs in Table I, or as deduced from Table II, the motions up to the given time from Tables IV, V, corrected by Table III.

TABLE

TABLE VI. has been already explained.

TABLE VII. gives the equation of the center for 1810, with the secular variation arising from the change of excentricity of the Earth's orbit. When the equation is subtractive, its complement to $12'$ is put instead of the equation itself, by which all the equations are rendered additive. By this arrangement, all the other equations are easily rendered additive without altering the epochs, by subtracting from all the numbers in this Table, $45''$, the sum of the little inequalities, the nutation excepted.

If z be the mean anomaly of the Sun, the equation of the center is

$1^{\circ}. 55'. 26'', 352 \sin. z + 1'. 12'', 679 \sin. 2z + 1'', 0575 \sin. 3z + 0'', 018 \sin. 4z$, computed from the perigee.

The secular variation has been calculated from this formula ;

$$- 17'', 177 \sin. z - 0'', 3606 \sin. 2z - 0'', 0078 \sin. 3z.$$

The annual and sidereal motion of the perigee is $11'', 8077193 (t - 1800) + 0'', 0000816482 (t - 1800)^2$, t being the Gregorian year for which we compute.

TABLE VIII. contains all the equations of the nutation which depend upon the Argument N . The First Column is the Argument N . The Second Column is the equation of the equinoctial points in *longitude*. The Third Column is the equation of the same points in *right ascension*. The Fourth Column is to convert the *mean* obliquity into the *true*. The Fifth Column contains the value of the term $0'', 09925 \sin. N$ in the expression for the equation of time, given in Table XXX. And we must here, as in that Table, enter a second time with the Argument $(2B + N + 500)$; and the constant quantity of the perturbations will be $-3'', 1$, if we substitute the use of Table VIII. for Table XXX.

TABLE VIII. *continued*, contains the Solar nutation, as depending on the situation of the Sun; and is put down for the days of the month. See Vol. II. Art. 1024.

If

If E be the mean obliquity of the ecliptic at the commencement of the year, n the number of days from the beginning of the year; then, as the mean obliquity diminishes at the rate of about $0'',52$ in a year, we have $365 : n :: 0'',52 : \frac{0'',52 \times n}{365}$ the diminution in n days; also, the Solar equation is $0'',4345 \cos. 2\odot$, and the Lunar equation is $9'',63 \cos. N$; hence, the nutation at the end of the n days is

$$E - \frac{0'',52 \times n}{365} + 0'',4345 \times \cos. 2\odot + 9'',63 \times \cos. N.$$

Table VIII, under *obliquity*, gives the term $9'',63 \times \cos. N$; and the part $-\frac{0'',52 \times n}{365} + 0'',4345 \cos. 2\odot$ is found in the following Table.

1 Jan.	- 0,41	31 March	+ 0,28	2 July	- 0,64	3 Oct.	+ 0,01
6	0,38	5 April	0,24	7	0,60	9	- 0,02
11	0,35	10	0,19	13	0,55	14	0,07
16	0,30	15	0,13	18	0,50	19	0,13
20	0,24	20	+ 0,06	23	0,44	24	0,20
25	0,18	25	- 0,02	28	0,37	29	0,28
30	0,12	1 May	0,10	3 Aug.	0,30	3 Nov.	0,36
4 Feb.	- 0, 5	6	0,18	8	0,24	8	0,44
9	+ 0,01	11	0,26	13	0,17	13	0,52
14	0,08	16	0,31	18	0,11	18	0,60
19	0,14	21	0,42	23	0,06	22	0,68
24	0,20	27	0,49	29	- 0,01	27	0,75
1 March	0,25	1 June	0,55	3 Sept.	+ 0,03	2 Dec.	0,81
6	0,28	6	0,60	8	0,05	7	0,86
11	0,30	11	0,64	13	0,06	12	0,90
16	0,32	16	0,66	18	0,07	17	0,93
21	0,32	22	0,68	23	0,06	22	0,94
26	0,30	27	0,66	28	0,04	27	0,96

TABLE IX. contains the mean motion of the Sun in right ascension, for *sidereal* hours, minutes, and seconds.

TABLE X., and its *Continuation*, contain the Lunar equation in longitude. Part the First depends on the Argument A . Part the Second is found by entering with the mean anomaly in the first perpendicular line, and Part the

the First at the top. Part the Third is found by entering with the Argument M in the first perpendicular line, and A at the top.

From the sum of the three Lunar equations you must subtract the constant quantity $0''.5$, and you get the whole Lunar equation in longitude.

TABLE XI. contains the correction in longitude arising from the disturbing force of *Venus*; taken out by the double arguments B, C .

TABLE XII. contains the same for *Mars*; entering with the Arguments B, D .

TABLE XIII. contains the same for *Jupiter*; entering with the Arguments B, E .

TABLE XIV. contains the same for *Saturn*; entering with the Arguments B, F .

TABLE XV. contains that part of the aberration of light of the Sun, which arises from the excentricity of the Earth's orbit. The constant part $-20''$ is contained in the epochs of the mean longitude of the Sun.

To find the heliocentric longitude of the Earth (which is necessary in calculating the places of the Planets), we omit the variable part of the aberration, and add $180^\circ. 0'. 20''$ to the true place of the Sun, computed from the mean equinox.

TABLE XVI. contains the radius vector, in *natural* numbers, to the mean distance *unity*, diminished by $0,0001$, in order to render the equations produced by the Planets, all additive; with the secular variation. The Argument is the mean anomaly of the Sun.

TABLE XVII. contains the *logarithm* of the radius vector, diminished by $0,0001$ for the reason above stated; with the secular variation. The Argument is the Sun's mean anomaly.

TABLE XVIII. Part the First, contains one part of the equation of the
radius

radius vector, by the Moon. The formula is $+ 0,000036361 \times \cos. A$. The Argument is A . Table XVIII. *continued*, contains the Second Part of the equation of the radius vector, by the Moon. The Argument is, the mean anomaly on the side, and the first part of the equation in the upper or lower line. Table XVIII. *continued*, contains the Third Part of the equation of the radius vector, by the Moon. The Arguments are, M in the first and last perpendicular line, and A at the top and bottom line.

TABLE XIX. contains the equation of the radius vector, by *Venus*.

TABLE XX. contains the equation of the radius vector, by *Mars*.

TABLE XXI. contains the equation of the radius vector, by *Jupiter*.

TABLE XXII. contains the equation of the radius vector, by *Saturn*.

In all the Tables of the equations of the radius vector, we have omitted 0,0000 at the beginning of the numbers: thus, 7.47 means 0,00007.47.

The sum of all the constant quantities which have been added to make the equations additive, has been taken from the numbers in Table XVI. The Computer therefore has nothing to do with any constant quantity. All the Tables of equations have been computed from the expressions denoting their value, and not by interpolation.

TABLE XXIII. contains a correction to be added to the logarithm of the radius vector, arising from the disturbing forces. It has for it's Arguments, the mean anomaly of the Sun in the horizontal line above, and the sum of the equations in the first perpendicular line.

TABLE XXIV. contains the Sun's semi-diameter, his hourly motion, and his horizontal parallax. The Argument is, the mean anomaly of the Sun.

TABLE XXV. contains the semi-diameter of the Sun in mean and sidereal
 VOL. III. b time,

time, and the Solar nutation; the latter of which has been already given in Table VIII.

TABLE XXVI. contains the motion of the Sun in *Latitude**. There are four Arguments, $A+B+N$, $2B-C$, $3C-4B$, $B-2E$, which are each to be entered in the Column (*Arg.*) and the respective quantities to be taken out. These equations are taken from LAPLACE'S *Méc. Cel.* Tom. III. p. 106, 108.

The sum of these equations may amount to 1'', and therefore in very nice calculations they must be considered; as in the observations of the equinoxes and solstices; and when we compare the Solar Tables with good observations.

TABLE XXVII. contains the effect of the motion of the Sun in latitude, upon his longitude, right ascension, and declination.

Let t be the latitude of the Sun, calculated by Table XXVI. for the instant of an observation, $\odot$ the Sun's true longitude in the ecliptic, A' its apparent right ascension observed, D' the apparent declination observed, A and D the right ascension and declination of that point of the ecliptic which has the same longitude as the Sun, w the apparent obliquity, that is, affected by nutation, and calculated by the Tables for the same instant.

Suppose we have calculated the longitude $\odot'$ by the formula, $\tan. \odot' = \frac{\tan. A'}{\cos. w}$; then $\odot = \odot' + t \times \tan. w \times \cos. \odot'$; this is the correct longitude. The correction $t \times \tan. w \times \cos. \odot'$ is marked with a double sign in the Table; the upper sign is for north latitudes, and the lower for south.

Suppose we have observed the apparent right ascension A' , then the
true

* The center of gravity of the Earth and Moon describing the ecliptic; the Earth is out of that plane, except when it is at the nodes of the orbit, which it describes about the center of gravity. The disturbing forces of Venus and Jupiter are also here considered. These circumstances give the Sun a latitude, and the corrections here given are to reduce his place to the ecliptic, as in the next Table.

true right ascension $A = A' + \frac{t \times \sin. w \times \cos. \odot}{\cos. D'^2}$, where $\frac{t \times \sin. w \times \cos. \odot}{\cos. D'^2}$

is the correction of the right ascension. The signs in the Table as before.

Suppose we observe the apparent declination D' , then the true declination $D = D' - \frac{t \times \cos. w}{\cos. D'}$, where $-\frac{t \times \cos. w}{\cos. D'}$ is the correction of declination. The signs in the Table as before.

The Table supposes $t = +1''$, and we multiply the numbers by the true value of t ; and if t be negative, as in south latitude, it changes the signs of the terms where it enters.

TABLE XXVIII. contains the Sun's hourly motion in longitude, right ascension, and declination. The Argument is, the Sun's true longitude.

TABLE XXIX. is to convert apparent into mean time, all calculations being made for mean time. The Table is given for the year 1810, with the secular variation.

As the equation of time depends (Art. 131.) upon the Sun's true right ascension, and that being affected by the disturbing forces of the planets, Table XXX. is calculated to give those effects; each of which has a double entry, except those which depend upon the Arguments A and N . They are all additive, but from their sum we must always subtract $3''.1$.

TABLE XXXI. contains the mean motion of the Sun from the beginning of the civil day, mean time, to apparent noon.

TO CALCULATE THE PLACE OF THE SUN.

This will be best explained by carrying on an Example with the precepts.

EXAMPLE. *To find the Place of the Sun on November 13, 1805, at 3^h. 42'. 29" mean Time at Greenwich.*

To find the Sun's LONGITUDE.

In Table I. take the epochs for the year 1805, with all the Arguments, and place them in an horizontal line.

For this Example, see the *Type* at the end.

In Table IV. take the mean motions of the same quantities for Nov. 13, and place them respectively under the quantities before taken.

In Table III. find the secular variation of the mean longitude and of the perigee*.

The secular variation for the beginning of 1800 is 0",3 and for 1900 is 2",6, making an increase of 2",3 in 100 years. Now from the beginning of 1800 to Nov. 13, 1805, is 5,865 years (see Table IV. for the fraction of the year); hence, $100 : 5,865 :: 2",3 : 0",1$, which added to 0",3 gives 0",4 for the secular correction of the longitude at the given time. Also, 0",0 is the correction of the perigee, in like manner. Put these respectively above the longitude and perigee; and add together all the quantities already found.

With the Arguments *M*, *A*, enter Table VI. and take out the correction of *A*, and add it to *A*.

In this example, $M=79$, $A=706$, which gives the correction 35.

With the hour enter Table V. and take out the corresponding mean motion of longitude, and the Arguments *A*, *B*, *C*. And in the same Table take out the mean motion for minutes and seconds. Place these under their
like

* The secular correction of the mean longitude found in Table III, ought to be applied to the longitude of the Moon, the planets, their perihelions and nodes; but this would not affect the mean anomaly and the Argument of latitude, if in forming them we should employ the longitude not affected by the correction of this Table.

like quantities, and add them all together respectively, and the sum is the *mean* longitude, the perigee, and arguments.

For 13^h the mean motion in longitude is $7'. 23'', 5$. For $42'$ the mean motion is $1'. 43'', 5$, and for $29''$, it is $1'', 2$.

The sum $7^s. 22^s. 18'. 1'', 0$ is the mean longitude. And for $13^h. 42'. 29''$, $A=5$, $B=0$, $C=1$. Add these to A , B , C , before found.

From the mean longitude subtract the place of the perigee, and you have the mean anomaly.

Hence, the mean anomaly is $10^s. 12^s. 42'. 54''$, or $10^s. 12^s, 715$.

With the mean anomaly take out the equation of the center in Table VII, and place it under the longitude. Take out also the secular variation.

For $10^s. 12^s. 40'$ the equation is $11^s. 28^s. 33'. 8'', 8$, and it increases $13'', 6$ for $10'$; hence, for $2'. 54''$ it increases $3'', 9$; the equation is therefore $11^s. 28^s. 33'. 12'', 7$.

The secular equation for $10^s. 12^s. 40'$ is $+12'', 99$, and for $10^s. 12^s. 50'$ it is $+12'', 96$; therefore for $10^s. 12^s. 42'. 54''$ it is $+12'', 98$; hence, for one year it is $0'', 1298$; this is for 1810. Now from the beginning of the year 1805 to Nov. 13, it is the $0,865$ part of a year; hence, $1805,865 - 1810 = -4,135$ years; therefore $0'', 1298 \times -4,135 = -0'', 5$ the secular variation from 1810 to 1805,865; place this $-0'', 5$ under the longitude.

Find the Lunar equation in Table X. and it's continuation.

With the Argument $A=746$, Table X. gives the equation $0'', 0$, the First Part.

With this First Part, and the mean anomaly $10^s. 12^s. 42'$, enter Table X. *continued*, Second Part, and we get an equation $0'', 2$.

With the Arguments $M=79$, $A=746$, enter Table X. *continued*, Third Part, and we get an equation $0'', 6$.

The sum $0'', 8$ of these three, diminished by the constant quantity $0'', 5$, gives $0'', 3$ the whole *Lunar* equation.

With the Arguments B , C , enter Table XI, and take out the equation arising from the disturbing force of *Venus*.

Here,

Here, $B=144$, $C=939$, and the equation corresponding is $11''$, which we find thus. The two nearest numbers to 145 and 939, are 140 and 940, corresponding to which the equation is $10''{,}9$. For an increase of 20 in M the increase of the equation is $0''{,}4$, therefore $20 : 5 :: 0''{,}4 : 0''{,}1$ the increase for 5 in M ; which, as the equation is increasing from 140 to 160, must be added to $10''{,}9$. For an increase of 10 in C , the increase of the equation is $0''{,}3$; therefore $10 : 1 :: 0''{,}3 : 0''{,}03$, which, as the equation decreases from 940 to 939, must be subtracted. Hence, the equation is $10''{,}9 + 0''{,}1 - 0''{,}03 = 11''{,}0$. Thus we must proceed in all double entries.

With the Arguments B, D , enter Table XII. and take out the equation for *Mars*.

Here, $B=144$, $D=764$, and the equation is $8''$.

With the Arguments B, E , enter Table XIII. and take out the equation for *Jupiter*.

Here, $B=144$, $E=722$, and the equation is $11''{,}2$.

With the Arguments B, F , enter Table XIV. and take out the equation for *Saturn*.

Here, $B=144$, $F=541$, and the equation is $0''{,}8$.

These equations being placed under the secular equation, the sum of the whole is $7^{\circ}. 20'. 51''. 44''{,}5$, the *true* longitude from the *mean* equinox.

With the Argument N enter Table VIII. and take out the Lunar nutation. And in the same Table *continued*, with the day of the month, take out the Solar nutation.

Here, $N=222$, you have the Lunar nutation in longitude $+ 17''{,}7$.

For November 13, in the Table *continued*, you have $- 1''{,}0$ for the Solar nutation in longitude.

Find the variable part of the aberration in Table XV, with the Argument, mean anomaly.

The anomaly $10^{\circ}. 12'. 42'$ gives the variable part of the aberration $- 0''{,}2$.

The sum of these three equations applied to the true longitude from the
mean

mean equinox, gives the true longitude from the true equinox, or the Sun's true longitude.

The sum of the three equations is $+16''.5$, which applied to $7^{\circ}.20^{\circ}.51'.44''.5$ gives $7^{\circ}.20^{\circ}.52'.1''.0$ the Sun's *true* longitude.

In calculations for the Planets, we take the longitude computed from the *mean* equinox, to which if we add $6^{\circ}.0^{\circ}.0'.20''$, we have $1^{\circ}.20^{\circ}.52'.4''.7$ the heliocentric longitude of the Earth.

To find the Sun's LATITUDE.

With the Arguments $A+B+N$, $2B-C$, $3C-4B$, and $B-2E$, enter Table XXVI, and take out the corresponding equations, and their sum is the latitude l .

Here $A+B+N=112$, which gives the equation $-0''.45$; $2B-C=349$ gives the equation $-0''.08$; $3C-4B=241$ gives the equation $+0''.08$; and $B-2E=700$ gives the equation $-0''.03$; the sum of these is $-0''.48$ the latitude l .

To find the RADIUS VECTOR.

With the mean anomaly enter Table XVI. and take out the radius vector. Apply to this the secular variation. Take out the *Lunar* equation from Table XVIII; the equation for *Venus* from Table XIX; the equation for *Mars* from Table XX; the equation for *Jupiter* from Table XXI; and the equation for *Saturn* from Table XXII. To the radius vector first found, apply all these equations, and you get the true radius vector.

With the mean anomaly $10^{\circ}.12^{\circ}.42'.54''$, or $10^{\circ}.12^{\circ}.715$, enter Table XVI. Now $10^{\circ}.12^{\circ}$ gives 9,9888233, and as the radius vector is decreasing, we must subtract the part corresponding to $0^{\circ}.715$; but to make the additional part additive, take the radius corresponding to $10^{\circ}.13^{\circ}$, which is too much by $0^{\circ}.285$; hence,

$10^{\circ}.13^{\circ}.$

10°. 13° gives	- - - - -	0,98860.23
for 0,2 add	- - - - -	4.42
for 0,08 add	- - - - -	1.77
for 0,005 add	- - - - -	0.11
Sum	- - - - -	<u>0,98866.53</u>

The secular variation corresponding to 10°. 12°,715 is +2.74, and therefore for one year it is +0.0274, which multiplied by -4,135 (1805,865 - 1810) gives -0.113 the secular equation.

With the Argument $A=746$ in Table XVIII. you get the First Part of the Lunar equation 3.71.

With the mean anomaly 10°. 12°. 42' and the First Part 3.71 of the equation, enter the Second Part of the Table, and you get the equation -0.0029.

With the Arguments $M=79$, $A=746$, enter the Third Part of the Table, and you get the equation 0.3.

The sum of these three equations is 4.01; from which subtract the constant quantity 0.3, and you have the *Lunar* equation 3.71.

With the Arguments $B=144$, $C=939$, you get in Table XIX. the equation 1.21 for *Venus*.

With the Arguments $B=144$, $D=764$, you get in Table XX. the equation 1.36 for *Mars*.

With the Arguments $B=144$, $E=722$, you get in Table XXI. the equation 0.65 for *Jupiter*.

With the Arguments $B=144$, $F=541$, you get in Table XXII. the equation 0.10 for *Saturn*.

These equations applied to the radius first found, you get 0.98873.45 the true radius vector.

The sum of the equations is 7.03

To

To find the LOGARITHM of the RADIUS VECTOR.

Proceed as in the last case, entering Table XVII, and taking out the logarithm of the radius vector, and the secular variation. And with the sum of the equations last found, enter Table XXIII. and take out the corrections, and apply them.

Entering Table XVII, we have

for $10^s. 13^\circ$	-	-	-	-	-	-	-	-	9,99496.55
for 0.3	-	-	-	-	-	-	-	-	1.942
for 0.08	-	-	-	-	-	-	-	-	0.7768
for 0.005	-	-	-	-	-	-	-	-	0.0485
									9,99499.3173

The secular variation is 1.213, and therefore the variation for one year is 0.01213, which multiplied by $-4,135$, you get -0.05 for the secular variation required.

The sum of all the small equations is 7.03; with which, and the mean anomaly $10^s. 12^\circ. 42'$, enter Table XXIII. Now 7, in the column $10^s. 10^\circ$ answers to 8.68, and it is the same for $10^s. 20'$; therefore it is the same for $10^s. 12^\circ. 42'$. In the proportional parts of the same column, 1.00 answers to 0.44, therefore 0.03 answers to 0.01. The sum of these two is 8.69. Add this to 0.05, and the correction is 8.65. Hence, the logarithm of the radius vector is 9.99507.96.

Or, having found the radius vector, it's logarithm may be found by the common Tables of logarithms.

To find the true OBLIQUITY of the ECLIPTIC.

The *mean* obliquity for 1800 is $23^\circ. 27'. 57''$. Find the secular variation by Table III, and thence the mean variation from 1800 to the given time, and apply it according to it's sign. With the Argument *N*, find the Lunar equation in Table VIII.; and in the same Table *continued*, find the Solar

equation. Apply all these to $23^{\circ}. 27'. 57''$, and you have the true obliquity for the given time.

In Table III. the secular variation is found to be $-52''.1$, and therefore the annual variation is $-0''.521$; and the time from 1800 to Nov. 13, 1805, is $5''.865$ years; hence, $-0''.521 \times 5,865 = -3''$ the mean variation from 1800 to Nov. 13, 1805.

With the Argument $N=222$ enter Table VIII, and under *Obliquity* you get the Lunar equation $+1''.7$. And for Nov. 13, you have the Solar equation $-0''.1$.

The sum of these three applied to $23^{\circ}. 27'. 57''$ gives $23^{\circ}. 27'. 55''.6$ the true obliquity.

To correct the SUN'S LONGITUDE, on account of his Latitude.

The correction is $l \times \text{tang. true obl. ecliptic} \times \cos. \odot\text{'s long.}$, l being the latitude. The product of the two last is found in Table XXVII.

Here, $l = -0''.48$, and the Sun's longitude is $7^{\circ}. 20'. 52'$. And by Table XXVII, $\text{tan. } 23^{\circ}. 27'. 55''.6 \times \cos. 7^{\circ}. 20'. 52' = -0,28$; hence, the correction of longitude $= -0''.48 \times -0,28 = +0'',13$.

To correct the SUN'S RIGHT ASCENSION, on the same account.

The correction is $l \times \frac{\sin. \text{true obl. ecl.} \times \cos. \text{long. } \odot}{\cos. \text{observed dec.}}^2$, which fraction is found in Table XXVII.

In this example the value of the fraction is $-0,28$; hence, the correction of right ascension is $-0''.48 \times -0,28 = +0'',13$.

To correct the DECLINATION, on the same account.

The correction is $-l \times \frac{\cos. \text{true obl. ecl.}}{\cos. \text{obs. dec.}}$, which fraction is found in Table XXVII.

In this example the value of the fraction is $-0'',96$; hence, the correction in declination is $-0''.48 \times -0'',96 = +0'',46$.

To

To find the SUN'S DIAMETER, PARALLAX, and HORARY MOTION.

With the Sun's mean anomaly enter Table XXIV, and you have the semi-diameter, parallax, and horary motion required.

Here, the anomaly is $10^{\circ}. 12'. 42'' = 10^{\circ}. 12',7$, with which enter Table XXIV, and you get $16'. 12'',29$ the semi-diameter; $8'',9$ the parallax; and $2'. 31'',2$ the horary motion.

To find the SUN'S DIAMETER in SIDEREAL and mean SOLAR Time.

With the Sun's true longitude enter Table XXV, and you have the semi-diameter required.

With the Sun's true longitude $7^{\circ}. 20'. 52''$, or $7^{\circ}. 21'$, enter Table XXV. and you obtain the semi-diameter in sidereal time $= 1'. 8'',4$, and in mean Solar time $= 1'. 8'',2$.

To find the SUN'S HORARY MOTION in LONGITUDE, RIGHT ASCENSION, and DECLINATION.

Enter Table XXVIII. with the true longitude, and you have the corresponding horary motions.

The true longitude is $7^{\circ}. 20'. 52'' = 7^{\circ}. 20',867$; for $7^{\circ}. 20'$ the motion in longitude is $2'. 31'',12$, and the difference is $0'',32$ for $5'$, or $0'',64$ for $10'$; hence, for $0',867$ it is $0'',06$; and the horary motion in longitude is $2'. 31'',18$. Also, the horary motion in right ascension is $2'. 33'',29$; and the horary motion in declination is $39'',89$.

To find the HORARY MOTION in RIGHT ASCENSION in TIME.

Multiply the horary motion in space by $\frac{1}{15}$, or $\frac{4}{60}$, and you have the horary motion in time.

Horary

Horary motion in space - - $2', 33'', 29$
4

 $60) 10'. 13'', 16$

 $10''. 13''', 16$ the horary motion.

Hence, the motion in time for twenty-four hours is $4'. 5''. 17''',76 = 4'. 5'',3$.

To find the EQUATION of TIME.

With the Sun's mean longitude for the given day, enter Table XXIX. and take out an approximate value of the equation of time ; also, the secular variation, and reduce the latter to the interval between the year 1810 and the given time, and apply it to the equation above taken. Take this from the given time (supposed to be apparent time), and you get nearly the mean time. Observe how much the equation varies in one day, and then find how much it varies for the given hour, minute, and second, and apply it to the equation already found. Enter Table XXX. with the Arguments already found, and also with the Argument $500 + 2B + N$ in the same line as you enter with the Argument N , and take out the effects arising from the perturbations of the planets*. Apply these, with the constant quantity $-3''.1$, to the equation last found, and you have the correct equation of time.

EXAMPLE. *To find the Equation of Time for Nov. 13, 1805, at 3^h. 57'. 58" apparent Time.*

With the mean longitude $7^{\circ}. 22^{\circ}. 8'. 52''$, or $7^{\circ}. 22^{\circ}. 9'$, enter Table XXIX. and you get $-15'. 30''.4$ for an approximate value of the equation. The secular variation is $-7''.77$, or $-0''.0777$ for one year. Also, $\text{Nov. 13, 1805} - 1810 = 1805,865 - 1810 = -4,135$; hence, $1 : -4,135 :: -0''.0777 : +0''.3$; and

* The perturbations of the Planets upon the Earth, affect the place of the Sun, and therefore produce an effect on the equation of time.

and the equation thus corrected is $-15'. 30'',4 + 0'',3 = -15'. 30'',1$; which taken from $3^h. 57'. 58''$ leaves $3^h. 42'. 27'',9$ nearly, mean time. The equation diminishes $9'',1$ in one day, and therefore for $3^h. 57'. 58''$ or $3^h. 58'$, it diminishes $1'',5$; and as the equation is subtractive, it now becomes $-15'. 28'',6$. The remaining part of the operation, for the perturbations of the planets from Table XXX. may stand thus:

					$-15'. 28'',6$
With $B = 144, C = 938$	-	-	-	Pert.	$+ 0, 8$
$B = 144, D = 764$	-	-	-		$+ 0, 6$
$B = 144, E = 722$	-	-	-		$+ 0, 9$
$B = 144, F = 541$	-	-	-		$+ 0, 1$
$A = 722$	-	-	-		$0, 0$
$N = 222$	-	-	-		$+ 0, 2$
$500 + 2B + N = 12$	-	-	-		$+ 0, 1$
Constant quantity	-	-	-		$- 3, 1$
Correct equation	-	-	-		$-15. 29, 0$

Hence, the mean time is $3^h. 42'. 29''$.

The whole calculation of the Sun's place is disposed in the following Table.

TYPE

[illegible]

ON THE TABLES OF THE MOON.

The Tables here offered to the public, were computed by M. BURG, and obtained the prize offered by the Board of Longitude at *Paris* in the year 1800. They are founded principally upon a series of more than three thousand two hundred observations made at Greenwich, from the year 1765 to 1793*.

They were calculated by what is called *Equations of Conditions*; that is, differential equations, expressing the variation which the calculated longitude of the Moon ought to undergo, when each of the uncertain elements which enter into the composition of the Tables, vary by a given quantity. Thus we may compare the different elements with observations, without being obliged to begin the calculations again.

In a long series of observations, the variations of all the terms of the formula pass successively nearly through all their possible values, both positive and negative, and pretty nearly equal in number; so that in the formation of the
general

* Extract of a Letter from M. DELAMBRE to Dr. MASKELYNE.

“ Institut National, Classe des Sciences Physiques et Mathématiques, Paris, le 20 Fevrier, 1806.
Le Secrétaire perpétuel pour les Sciences Mathématiques à Monsieur MASKELYNE, Astronome Royal et Membre de la Société Royale de Londres.

“ Monsieur, et respectable Confrère,

“ Le Bureau des Longitudes me charge de vous offrir Sept Exemplaires des Tables qu’il vient de publier. Cet hommage de sa haute estime et de sa reconnoissance étoit bien dû à l’auteur du plus grand et du plus précieux recueil d’Observations qui existe. C’est à cette source que nous avons puisé Monsieur BURG et moi pour la plus exacte détermination des coefficients des equations Lunaires et Solaires, c’est là que nous avons trouvé la confirmation des inégalités que la théorie peut bien indiquer, mais dont la valeur ne pourroit être fixée que par des calculs qui sont encore au dessus des forces de l’analyse; enfin, c’est à vous que nous devons la connoissance des mouvemens moyens et de toutes les constantes que l’observation seule peut donner. Recevez donc, avec bienveillance, un ouvrage auquel vous avez si puissamment contribué. Nous serons très flattés si vous jugez nos Tables digne d’être employées aux calculs du Nautical Almanack, suivant l’apparence que nous en donne votre dernier préface.”

general sum of all the equations of conditions, all the variable terms will nearly destroy each other, whilst the constant error, such as that of the epoch, will be repeated as often as the number of observations; and thus, dividing the sum of the errors of the Tables by the number of observations, we obtain the mean error, and consequently the correction of the epoch for the middle point of time at which the observations were taken. Thus the epoch for 1779 was corrected.

This proceeding, which was at first founded upon a very reasonable presumption, has by its application been proved to be true. The epoch thus found differs scarcely $1''.4$ from that which had before been determined, after having separately fixed the values of each of the coefficients, and substituted them into the equations of conditions. This epoch therefore may be considered as independent of the different quantities which enter into the formula for the place of the Moon; and nothing more correct can be expected.

The Author considered, that the mean longitude of the Moon for 1779 was the most certain of all the elements in Astronomy; and that this longitude might afterwards serve to find the secular inequalities, or the mean motion of the Moon, to the utmost precision, by a comparison with another epoch fixed in like manner at a considerable distance of time from it. This longitude for December 31, 1788, at noon, for the meridian of Paris, is $2^s. 12^{\circ}. 40'. 40''.4$, or rather $2^s. 12^{\circ}. 40'. 47''.4$, considering the secular equation.

Amongst the equations of conditions, there have been found thirteen hundred which served to give the mean anomaly of the Moon for 1779. The resulting equation therefore ought to be considered as independent of the errors of the Tables. For the first trial differed from the last adopted result, only by a few seconds; a quantity which we cannot be certain of in the mean anomaly of the Moon, because it can have no sensible influence upon the mean longitude. This anomaly is therefore an element well established, and may afterwards serve to determine the motion of the apogee. If we consider
the

the secular equation, the anomaly for 1779 will be $5^{\circ}. 11^{\circ}. 45'. 25'',3$; and as the equation itself is $-28''$, the *true* anomaly is $5^{\circ}. 11^{\circ}. 44'. 57'',3$. In all these calculations, the epochs are for noon, December 31.

In running the eye over the equations of condition, we see which are most proper to determine the coefficients. We then unite into one sum, all those where the inequalities which we wish to correct, are found positive and near their maxima, and negative near their maxima. If the numbers on each side be equal, the difference of their sums divided by the sum of the sines which regulate the inequality, gives immediately the correction sought. But if the number of observations be unequal, we must, before the division, have regard to the error of the epoch, and the correction will then become more exact than it would have been, if founded upon a greater number of observations. The Author generally united nine or ten hundred observations, for each of the coefficients he had to determine. In one case only, he united so small a number as six hundred and sixty-eight. There can therefore be no doubt but that the coefficients are determined to a very great degree of accuracy. For greater security, however, the Author corrected them a second time, and the second determination generally differed only the fraction of a second from the first; and twice only they differed so much as $3''$.

Many of the equations given by our Author, are not found in the Tables of MAYER and MASON. In frequently comparing the calculations with the observations, the Author often remarked differences which he could not attribute to the errors of observation, for they were constant during many successive days. He suspected therefore, that they might be owing to some equations still unknown, or which might have been neglected. This induced him to examine all the equations of MAYER, which had not been employed by MASON; these, however, he found to be, for the most part, so small, that they might be neglected.

From the Author's own experience, and from a great number of the Greenwich observations which he had occasion to examine and compare, he had no doubt of the existence of four new equations, of which he had found

the coefficients above 2"; but others, whose coefficients were below 1", he thought doubtful. According to MAYER, the theory demanded the equations; but it appeared certain, that the coefficients could not be greater than 3". The Greenwich Observations appeared proper to settle these coefficients. Almost all the inequalities of the Moon's longitude have a short period. The smaller the number of Stars observed, the more we may hope the errors will be combined in all possible ways in the different sums which are formed for determining the coefficients. We might then obtain an exact value, if the places of the Stars were not determined with the utmost accuracy, provided the same Stars were always chosen, and the same number of observations were made for the positive and negative maximum. Such observations were found amongst those made at Greenwich, the accuracy of which cannot be doubted. But when it happens, that by the discovery of some inequality hitherto unknown, there arises a certain error, and this error appears to be the same for all the Stars, it only affects the mean longitude. Correcting therefore the epoch, we need not fear any sensible error in determining the coefficients.

Various were the attempts of the Author to ascertain the cause of the errors, and to perfect the Tables. He found the errors of latitude never exceeded 10". The most remarkable of the corrections of latitude, is a new equation discovered by M. LAPLACE, the Argument of which is the true longitude of the Moon. The Author fixed this equation by eight hundred and sixty-six observations. It has for it's coefficient - 8", and varies as the sine of the true longitude of the Moon. This equation makes a change in the inclination of the Lunar orbit. The Greenwich Observations have given the following coefficients:

$$+ 5^{\circ}. 8'. 40'',8 \sin. \arg. \text{lat.} - 5'',0 \sin. 3 \arg. \text{lat.} *$$

The

* Let I be the inclination of the orbit, A the argument of latitude, l the latitude; then,
 $\sin. l = \sin. I \times \sin. A$, and $l = \sin. I \times \sin. A + \frac{1}{2.3} \overline{\sin. I^3} \times \overline{\sin. A^3} + \frac{3}{2.4.5} \overline{\sin. I^5} \times \overline{\sin. A^5}$

The Author made no sensible correction to the place of the node. By fifteen hundred and twenty-nine observations, he found the supplement of it's longitude to be $9^{\circ}.10^{\circ}.34'.6''$, including the secular equation; and without it, $9^{\circ}.10^{\circ}.34'.11''.2$, agreeing very nearly with MAYER's determination.

Amongst the first attempts to perfect the Lunar Tables, the Author adopted the flatness of the Earth $\frac{1}{330}$; but with this he found the parallax too great. To give further light upon this subject, he compared a great number of the greatest north and south latitudes, and found that the parallax must be diminished; but still this diminution would not suffice. He then suspected the refractions of BRADLEY, and diminished his horizontal refractions $10''$ or $11''$. He also attempted to determine the parallax from the length of a pendulum under the equator; and the result was found to agree with the observations in higher latitudes. Another method was, by the occultations of fixed Stars observed at the same time in very different latitudes; and this gave a diminution of $10''$. But the most decisive circumstance was this, that the observations made at the same time, both at the Cape of Good Hope and in Europe, gave $57''.1$ for the equatorial parallax, the flatness being $\frac{1}{330}$.

The diameter of the Moon was deduced from the occultations of Stars. The direct measures made with DOLLAND's micrometer gave the same results.

The mean annual motion in longitude, assumed by the Author, was $4^{\circ}.9^{\circ}$.

$$\overline{\sin. A^5} + \&c. = \left(\sin. I + \frac{1}{8} \overline{\sin. I^3} + \frac{3}{64} \overline{\sin. I^5} \right) \sin. A - \left(\frac{1}{24} \overline{\sin. I^3} + \frac{3}{125} \overline{\sin. I^5} \right) \sin. 3 A + \left(\frac{3}{640} \overline{\sin. I^5} \right) \sin. 5 A - \&c.$$

If $I = 5^{\circ}.8'.47''$, we have $l = 5^{\circ}.8'.40''.77 \sin. A - 6''.2 \sin. 3 A + 0''.01 \sin. 5 A$.

This second coefficient differs from that stated above; the coefficient $5''.0$ is perhaps a little too small.

4'. 9°. 23'. 4'',85, as results from the observations of BRADLEY compared with the epoch of 1779. It was of the first consequence to have the mean motion exact, as any error in that would produce an error always increasing.

The Tables having been thus formed, he compared his calculations with the new observations, and it was very remarkable, that during many lunations, the Tables gave the longitude always too great, the errors varying but little, the least being 4'',8, and greatest 23'',6, making the difference 19'',2. He concluded therefore, that the errors of all the equations could not amount to more than 10''.

He suspected, therefore, that the epochs of 1801 and 1802 were too great in his Tables, but he did not then see the cause of the error. To diminish the mean motion could not be justified by the preceding observations, and he could not wait for those which were to follow; and he had less reason to suspect the error of the epoch for 1779. The discovery, however, by M. LAPLACE of a new equation $y \sin. (\text{apog. } \varpi + 2 \text{ long. } \varpi - 3 \text{ apog. } \odot)$ relieved him from all his difficulties.

All the preceding attempts to correct the mean motion became doubtful, in consequence of this new equation; and would have remained so, if M. LAPLACE had not pointed out the law upon which it depends. To separate the two unknown quantities, he sought for those observations which would give the mean motion independent of this new equation; and this equation very nearly vanished in 1802. Another time adapted to this purpose was in 1712, provided proper data could be procured; but the Author did not know of any observations at that time, upon which he could rely for their accuracy. The occultations of *Aldebaran*, at the beginning of the preceding century, appeared best calculated for this purpose, as the immersion and emersion of a Star of the first magnitude, can be observed with great accuracy; and as the proper motion of this Star is now very well settled, its place at any time can be very accurately determined.

To obtain the position of *Aldebaran* at the beginning of the preceding century,

century, the Author compared the right ascension of this Star for 1800 with that of 1760. According to the last determination of Dr. MASKELYNE, the right ascension

For 1800 was	66°. 4'. 17",7
1760, by BRADLEY, MAYER, and LACAILLE . .	65 . 32 . 37, 7
Motion in forty years	<u>31 . 40</u>

By calculation, we can determine the difference between this motion, and that of the forty preceding years; and upon this principle we find the right ascension for 1700 to be 64°. 41'. 27",2.

In like manner, the Author determined the declination; adopting M. PIAZZI's determination for 1800, as it appears to have been made with great care.

The Author supposed the obliquity of the ecliptic to be 23°. 27'. 56",8, according to the determination of Dr. MASKELYNE and MECHAIN, with a diminution of 50" in 100 years. With these elements, he found the latitude and longitude of the Star for each of the given times.

Upon these principles, the Author has found the errors of the Tables in latitude and longitude to be as follows:

	Longitude.	Latitude.
1669, Aug. 18, at Paris	+ 6",9 . .	- 5",2
Nov. 8, at Marseilles	- 3 ,1 . .	
1700, Jan. 2, at Marseilles	- 16 ,2 . .	
—— at Bologne	- 19 ,2 . .	
1701, Feb. 16, at Perpignan	+ 1 ,8 . .	- 3 ,7
Sep. 22, at Paris	- 6 ,4 . .	+ 6 ,5
1717, Sep. 25, at Paris	- 1 ,0 . .	
1718, Feb. 9, at Paris	+ 4 ,5 . .	
1719, Apr. 22, at Paris	- 3 ,6 . .	+ 5 ,2
Oct. 30, at Paris	- 6 ,1 . .	- 4 ,8

The sign + indicates the latitude and longitude too great, and - too little.

If

If into these calculations we introduce the equation $y \sin. (\text{apog. } \odot + 2 \text{ } \oslash - 3 \text{ apog. } \odot)$, we shall have the following quantities:

Mean long. 1699,6	$- 0,387 y =$	long. of the Tables	$- 6'',9$
1699,8	$- 0,380 y =$		$+ 3,1$
1700,0	$- 0,375 y =$		$- 16,2$
1701,1	$- 0,340 y =$		$- 1,8$
1701,7	$- 0,320 y =$		$+ 6,4$
1717,7	$+ 0,218 y =$		$+ 1,0$
1718,1	$+ 0,230 y =$		$- 4,5$
1719,3	$+ 0,270 y =$		$+ 3,6$
1719,8	$+ 0,288 y =$		$- 6,1$

Mid. mean long. 1709 $- 0,088 y =$ long. of the Tables $- 21'',4 = 5^s. 1^{\circ}. 45'. 3'',0$

But* 1802 $+ 0,048 y$ $= 7.24.24.15,0$

Mean motion in 93 years $+ 0,136 y$ $2.22.39.12,0$

In the Tables this motion is $2.22.39.21,6$

Difference in 93 years $9,6$

If therefore m' be the error of the mean motion in one year, we have (dividing 0,136 and $9'',6$ by 93)

$$m' + 0,0015 y = - 0,1032, \text{ and } m' = - 0,1032 - 0,0015 y.$$

In like manner, from the observations made in 1736, 1738, and 1739, the Author found the

$$\text{Mean long. } 1738 + 0,799 y = \text{long. of the Tables} + 0'',4 = 1^s. 6^{\circ}. 8'. 31'',3.$$

In 1775, 1776, and 1777, the mean error of the Tables of the Author was $- 1''$, according to the observations made at Greenwich, which gave the following equation:

$$\text{Mean long. } 1776 + 0,804 y = \text{long. of the Tables} - 1'' = 1^s. 14^{\circ}. 31'. 26'',8;$$

hence,

* By the Author's own observations. In all these calculations, the epoch is for Dec. 31, at noon.

hence,	The mean motion in 38 years + 0,005 y	-	=	0°. 8°. 22'. 55'',5
	The Tables of the Author gave	- - - - -		0 . 8 . 22 . 54 ,53
	Difference in 38 years	- - - - -		<u>0 ,97</u>

Dividing therefore 0,005 and 0'',97 by 38, we get,

$$m' + 0,0001y = + 0,0255, \text{ and } m' = + 0,0255 - 0,0001y.$$

The mean of these two values of m' is

$$m' = - 0,0388 - 0,0008y.$$

After having obtained the correction of the mean motion, in a manner independent of this new equation, it becomes easy to determine its coefficient. This the Author has done by the following comparisons.

According to the Tables of MASON, reduced to the meridian of Paris, the epoch of the mean longitude for 1756 is 9°. 0°. 56'. 54'',4, from which we obtain this equation:

$$\text{Mean long. 1756} + 0,999y = 9°. 0°. 56'. 54'',4.$$

To this longitude add the motion for 46 years, as above determined; and to the term + 0,999 y unite the term $46 \times - 0,0008y = - 0,037y^*$, and we have

$$\text{Mean long. 1802} + 1,036y = 7°. 24°. 24'. 27'',02.$$

But, according to the observations of the Author,

$$\text{Mean long. 1802} + 0,048y = 7°. 24°. 24'. 15'';$$

$$\text{and by subtr. } 0,988y = 11'',02, \text{ and } y = + 11'',1.$$

By several comparisons made in the same manner, the mean of all the values gave $y = 14'',9$; the equation therefore becomes

$$+ 14'',9 \sin. (\text{apog. } \odot + 2 \text{ } \oslash - 3 \text{ apog. } \odot),$$

of which, the error probably does not exceed 1'' or 2''.

Hence, we have the mean annual motion of the Moon 4°. 29°. 23'. 4'',7993.

The

* The error of the mean annual motion being $-0,0008y$, as depending upon y , it becomes additive to make the correction.

The mean of all the observations made at Greenwich, from 1765 to 1794, gives

$$\text{Mean long. } 1779 + 0,697 y = 2^{\circ}. 12^{\circ}. 40'. 40'',4.$$

But for the beginning of 1779, the coefficient of y is 0,737; the Author has therefore taken, for the foundation of the epochs of his new Tables,

$$\text{Mean long. } 1779 = 2^{\circ}. 12^{\circ}. 40'. 40'',4 - 0,737 y = 2^{\circ}. 12^{\circ}. 40'. 29'',4;$$

and hence the mean longitude for 1802 is $7^{\circ}. 24^{\circ}. 24'. 14'',9$.

By means of these corrections, amongst the observations of the Author he has found only two where the error exceeded $10''$, and they were marked doubtful. He hopes, therefore, that the errors will very seldom be found to amount to $10''$ or $12''$. The perfection to which the Tables are now reduced, are altogether owing to the discovery of this new equation.

The Author concludes his memoir, with some remarks upon the annual motions of the mean anomaly and node.

The observations of FLAMSTEAD and of BRADLEY, compared with those of Dr. MASKELYNE, agree very nearly, and give $2^{\circ}. 28^{\circ}. 43'. 19'',086$ for the annual motion of the mean anomaly. And this is confirmed by the Author's own observations. In respect to the node, the epoch of MASON for 1756 compared with that of 1779, gives the annual mean motion $19^{\circ}. 19'. 43'',311$. From many eclipses observed at the beginning of the last century, it has been found $19^{\circ}. 19'. 43'',414$. The Author has taken the mean $19^{\circ}. 19'. 43'',36$; but he thinks that the observations of 1802 require that the longitude of the node should be diminished about $1'$. These observations, however, being but few in number, he leaves it to future observations to settle this point.

When the Board of Longitude at Paris received the Tables, the first object was to compare them with the best and latest observations, those made at Greenwich and Paris; in all, one hundred and thirteen, without counting the thirty which M. BURG himself made.

The mean longitude for 1801, deduced from fifty-one Observations } of Dr. MASKELYNE in 1779 and 1800, has been found to be }	3 ^s . 15°. 1'. 26",0
Twenty-eight Observations at Paris in 1801, 1802, give - - - - -	3 . 15 . 1 . 21,5
Twenty-four Observations at Greenwich in 1801, 1802, give - - - - -	3 . 15 . 1 . 25,0
Three Observations of M. BURG, taking into consideration } 3",8 which Dr. MASKELYNE added to the right ascension of }	3 . 15 . 1 . 24,8
all the Stars, give - - - - -	
The mean of all is - - - - -	<u>3 . 15 . 1 . 24,4</u>

But this quantity is too great by 10",2 for the secular equation, and by 1",1 for the equation of M. LAPLACE ;

Hence, the mean long. - - - - -	3 ^s . 15°. 1'. 13",1
Motion for 12 hours - - - - -	6 . 35 . 17,5

Mean long. for 1 st of January, at Paris - - - - -	<u>3 . 21 . 36 . 30,6</u>
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M. BURG made it 4" more. He also made the secular motion in longitude 7^s. 10°. 52'. 43",48.

In the Tables of MAYER, there are only fourteen equations of longitude. MASON introduced eight more equations which MAYER had given in his Theory, but which he thought of too little consequence, or too uncertain, to be introduced into his Tables. M. BURG proved the necessity of the equations introduced by MASON, and added six others which were new.

The new equations added, have for their coefficients 2",1, 2",2, 1",3, 1",3, 1",2, and 1",1. The sum of all these corrections, if they conspired at their maxima, might produce 1' in the longitude. The difference of the two Tables sometimes amounts to this quantity ; but this must not be attributed to these corrections, which very seldom amount to a quarter of this quantity, but to the effect arising from the secular equations of the anomaly and node, and of an equation, of which the period is 185 years, without which we could never have determined, either the epochs, the mean motions, or the arguments of the principal inequalities. The Tables may now continue for some time, without requiring any further correction.

FORMATION of the LUNAR TABLES.

TABLE I. contains the epochs of the mean longitude of the moon, the mean anomaly, and the supplement of the node, for mean noon of the first of January, according to the civil account; with their secular equations.

The secular equation consists of two parts, of which one is

$$10'',181621268n^2 + 0'',0185384408n^3$$

according to M. LAPLACE (*Méc. Cel.* Tom. III. p. 273), n being the number of years from 1700. The other equation is that of 185 years. These equations are united and put into one Table, to facilitate the computations.

The secular equation of the mean anomaly = $4,00052 \times$ secular equation of longitude.

The secular equation of the node = $0,735452 \times$ secular equation of longitude. It is additive like the two preceding, but becomes subtractive when applied to the supplement of the node.

For past or future ages, the longitudes must be corrected by the Third of the Solar Tables. This correction, common to the perigee and longitude, becomes of no effect in respect to the mean anomaly.

This same correction, additive for the node, becomes subtractive for the supplement; but it reduces itself to nothing for the argument of latitude, which we may form with the supplement of the node and of the longitude not affected by this equation.

TABLE II. gives the quantities to be added to the epochs for the nineteenth century in Table I, in order to obtain the epochs for the corresponding year in any other age.

This Table has two supplements, to be used when we want the epochs not within the limits of the first Table.

After having added to the epochs for the corresponding year in the
nineteenth

nineteenth century, the quantities taken from Table II. corresponding to the number of centuries between the nineteenth and the given century, we must add the secular equations for the given year, taken from Table III; to which must be applied, the correction of the longitude in the Third of the Solar Tables, to be added to the longitude, but not applied to the anomaly; and subtracted from the supplement of the node.

EXAMPLE. *To find the Epochs of the Moon for the Year 2375.*

	Longitude.	Anomaly.	Supp. of the Node.
For 1875	^s 6. 29. 55. 27,7	^s 5. 22. 42. 40,5	^s 11. 7. 23. 53,2
For 500	1. 16. 41. 16,2	7. 11. 50. 53,1	10. 10. 45. 47,6
For 2375	8. 16. 36. 43,9	1. 4. 33. 33,6	9. 18. 9. 40,8
Tab. III. 2300 . . .	6. 10,5	24. 42,0	— 4. 33,0
Prop. Parts of } 50	1. 7,4	4. 29,5	— 57,0
100 years } 25	33,7	2. 14,7	— 28,5
	8. 16. 44. 35,5	1. 5. 4. 59,8	9. 18. 3. 42,3
Solar Table III. . .	+ 47		— 47,
Epochs for 2375 . .	8. 16. 45. 22,5		9. 18. 2. 55,3

For the year 14375 we take 1875, and the difference is 12500; this we may divide into 12000 and 500; 500 we take from Table II; and in the second supplement, we take the movements for 2000 years, and multiply them by 6, and we get the motions for 12000. And in like manner we must proceed in every other case.

TABLE III. contains the secular equations of the longitude, anomaly, and the supplement of the node, for every century within its limits; that is, for 1000 years before CHRIST, to 3500 after.

TABLE

TABLE IV. contains an equation of longitude of a very long period, discovered by M. LAPLACE; of which the formula is

$$\begin{aligned} &+ 14'',0 \sin. (\text{mean anom. } \zeta - \text{long. } \zeta + 2 \text{ sup. node} + 3 \text{ perigee } \odot) \\ &= - 14'',0 (- \text{perigee } \zeta - 2 \text{ long. } \oslash + 3 \text{ perigee } \odot) \\ &= 14'',0 (+ 2 \text{ long. } \oslash + \text{perigee } \zeta - 3 \text{ perigee } \odot). \end{aligned}$$

For the nineteenth century, this and the preceding Table are of no use, as the particular equations are contained in Table I. But for other centuries, we omit these particular equations, and use Tables III, IV.

TABLE V. contains the mean motions of longitude, anomaly, and supplement of the node, for *days*.

TABLE VI. contains the mean motion of the same quantities for *hours*, *minutes* and *seconds*.

TABLE VII. is the first of the equations of longitude. All the numbers here have been increased by $12'$, in order to make them all additive.

TABLE VIII. is the second equation of longitude, and the constant quantity $20''$ is added to make the equation additive. Equation III. has $20''$ added. Equation IV. has $10''$ added. Equation V. has $2'$ added. Equation VI. has $1^\circ. 33'$ added. Equation VII. has $1'$ added. Equation VIII. has $3''$ added. Equation IX. has $1'$ added. Equation X. has $1'$ added. Equation XI. has $2'$ added. Equation XII. has $1'',1$ added. Equation XIII. has $3'$ added. Equation XIV. has $1'$ added. Equation XV. has $2'',3$ added. Equation XVI. has $1'',3$ added. Equation XVII. has $10''$ added. Equation XVIII. has $2'$ added. Equation XIX. has $10''$ added. Equation XX. has $20''$ added. Equation XXI. has $1''$ added. Equation XXII. has $1'',2$ added. Equation XXIII. has $10''$ added. Equation XXIV. has $10''$ added.

Thus

Thus all the Tables of the equations of longitude, from Table VII, to Table XXX, including twenty-four equations, have all their numbers increased, in order to render them additive. All these constant quantities together make 2° . The Arguments are at the Head of the Tables, and the equations are immediately taken from them, and require no explanation.

TABLE XXXI. contains, for the mean anomaly, a correction depending on the mean anomaly of the Sun. And to render the equations all additive, the constant quantity $11^\circ. 28'$ is added to them all. This equation added to the twenty-four preceding equations, gives the correction of the mean anomaly. The sum of the constant quantities for the twenty-five equations, is 12° , or an entire circle; and consequently it is nothing.

TABLE XXXII. serves to correct the supplement of the node. All the numbers have been increased by $11^\circ. 29'. 22''$, in order to render them additive.

The sum of the twenty-four equations in longitude being too great by 2° (the sum of all the constant quantities which have been added to render them all additive), the equation of the center in Table XXXIII. has been augmented by $11^\circ. 28'$, to render it additive; and the longitude thus found, is increased 12° , or nothing.

In TABLE XXXIV. the constant quantity $38'$ has been added, in order to render the equations additive.

In TABLE XXXV. the constant quantity $2'$ has been added for the same purpose.

In TABLE XXXVI. the constant quantity $11^\circ. 29'. 20''$ has been added
for

for the like reason. These three constant quantities make $12'$, or nothing; the longitude is therefore not affected by them.

By this means, the equations are rendered additive, without the epochs being altered.

On account of $38'$ added to the Equation XXVI, the distance of the Moon from the node, which enters into Argument XXVII, is too great by $38'$; we therefore subtract $38'$, by adding $11^{\circ}. 29'. 22''$ to the correction of the node, taken in Table XXXII.

The distance of the Moon from the node, corrected by Equation XXVII, would be too great by $2'$; we must therefore subtract $2'$, or add $11^{\circ}. 29'. 58''$, in order to get Argument XXVIII. of longitude. This is also Argument I. of latitude.

TABLE XXXVII. gives the distances of the center of the Moon from the north pole of the ecliptic, diminished by $10'. 20'', 1$, for this reason. The Tables of M. BURG give the latitude l , and the equations dl of latitude. To give the distances from the pole, our Tables contain $90^{\circ} - l - dl$; but to render the equations additive, there is put $10'. 20'', 1 - dl$; we must then for $(90^{\circ} - l)$ substitute $(90^{\circ} - l - 10'. 20'', 1)$.

The constant quantity $10'. 20'', 1$ is the sum of all the constant quantities added to the eleven equations of latitude.

In Table XXXVIII, to Equation II, $8'. 48''$ is added to make it additive; to Equation III, $3'', 1$ is added; to Equation IV, $17'', 6$ is added; to Equation V, $25'', 1$ is added; to Equation VI, $1'', 9$ is added; to Equation VII, $9''$ is added; to Equation VIII, $3'', 7$ is added; to Equation IX, $2'', 2$ is added; to Equation X, $15'', 9$ is added; to Equation XI, $5'', 2$ is added; to Equation XII, $8''$ is added.

To render additive all the equations of parallax, $1'. 11'', 9$ has been subtracted from the principal term which is always positive, and which is put first in Table XXXIX, depending on Argument XXV. of longitude.

The

The equations of parallax, which depend on the evection and variation, are contained in Tables XL. and XLI, in which the constant quantities added are $37'',6$ and $27'',2$ respectively.

TABLE XLII. contains the smaller equations of parallax. The Arguments are those of longitude, and are placed at the Top and Bottom, and are to be entered in the first or last Column, and the equations to be taken out in the Columns where the Arguments stand. The constant quantities which are added to make the equations all additive, are $0'',3$; $2'',2$; $0'',1$; $0'',2$; $0'',7$; $0'',8$; $1'',0$; $0'',6$; $0'',4$; $0'',8$, in their order.

TABLE XLIII. gives the horizontal semi-diameter of the Moon, from the parallax. This Table supposes the ratio of her diameter to the equatorial parallax, as $32'.45'',1$ to $60'$.

TABLE XLIV. gives the augmentation of the semi-diameter, at any altitude.

TABLES XLV, XLVI. are for the purpose of calculating the parallax on an oblate spheroid, either when the diameters are as $299 : 300$, or as $329 : 330$.

TABLE XLVII. contains nineteen of the smaller equations of the horary motions in longitude. The Arguments are those of longitude, and are placed at the Top and Bottom; and are to be entered on the Side, and the equations taken out in the Columns where the Arguments stand. The constant quantities which are added to make the equations all additive, are $0'',5$; $0'',11$; $0'',08$; $0'',22$; $0'',1$; $1'',6$; $0'',02$; $0'',3$; $1''$; $1'',3$; $1'',04$; $0'',25$; $0'',1$; $0'',03$; $0'',1$; $0'',3$; $0'',08$; $0'',07$; $0'',8$, in their order. The equation which depends on the Argument of evection, is found in Table XLVIII; this has been augmented by the constant quantity $46''$. These equations altogether have been augmented $1'$.

TABLE

TABLE XLIX. contains the principal part of the horary motion in longitude. The constant quantity subtracted is $2'$. But the sum of the quantities added to the equations, is $1'$; therefore the sum of the fifteen first equations is too little by $1'$.

TABLE L. contains the Second Part of Equation XXV, for which you entered with Argument XXV. at the Side, and the sum of the small equations at the Top.

TABLE LI. contains that part of the hourly motion which depends upon the variation. All the numbers are augmented by $41''$, so that the sum of the twenty-six equations are too small by $19''$.

TABLE LII. gives the Second Part of Equation XXVI.; and this Part is increased $10''$, so that the whole is now too small by $9''$.

The constant quantities in Equation XXVII. Tables LIII, LIV. are $1''$ and $10''$; the whole is therefore too great by $2''$.

TABLE LV. contains the hourly change of the reduction to the ecliptic. The constant quantity $8''$ added, makes the sum total too great by $10''$; and this has been subtracted from all the numbers in Table LVI., which thereby become all subtractive, so that the sum of the twenty-eight equations become what they ought to be.

The sum of all these equations is the motion for the hour, which is divided into two equal parts at the instant for which the calculation is made. To get the motion for the preceding and following hour, we must apply the equations of the second order, the arguments of which are the same as those of the first order.

The

The small equations, to the number 9, are contained in Table LVII, first Page; Equations 14, 15, are so small that they may be neglected; or we may put for them constantly $0''.001$. Equation 15 is to be entered in the Table with Argument XV. + 6 signs.

The three equations, 6, 25, 26, are in the next page; the constant quantities added are $0''.164$; $1''.048$; $0''.396$ in their order. The constant quantities added to Equations XXVII, XXVIII. are $0''.004$ and $0''.075$ respectively.

TABLE LVIII. contains the Second Part of Equation 25. The formula is at the Bottom of Table LVII.

The Second Part of Equation 27 is in Table LIX. The differences are so great, that to facilitate the calculations of the proportional parts, there are added two small Tables; the first, entitled *Horizontal*, gives the parts for the hundredths of a second of Equation XXVI, which is the Argument put at the Head; the other, entitled *Vertical*, gives the parts for every $3''$ of change in the other Argument; and the constant quantities added to Tables LVIII, LIX, are $0''.054$ and $0''.5$ respectively.

TABLE LX. contains Equation 28, First Part. The constant quantity added is $0''.002$.

TABLE LXI. contains Equation 28, Second Part. The sum of the constant quantities of the Equations of the Second Order which have been added, is $2''.299$, which is subtracted in this Table, making the numbers all subtractive.

Next follow the Tables for the hourly motion in *Latitude*. And here it was not necessary to render all the equations additive; in Table LXII, therefore, the signs are left + and -; the sign + indicating a motion towards the *north* pole, and - towards the *south*. The nine following equations are

VOL. III.

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always

always additive; and to reduce them to their proper value, the constant quantity $5''$ is to be subtracted. The sum thus corrected and united with the equation in Table LXII, according to the signs, gives the hourly motion in latitude, for the instant which divides the hour into two equal parts.

In TABLE LXIII. the constant quantity added is $4'',3$.

In TABLE LXIV. the constant quantities added are $0'',03$; $0'',3$; $0'',04$; $0'',1$; $0'',01$; $0'',04$; $0'',02$; $0'',06$; $0'',1$ in their order.

TABLE LXV. contains an equation of the motion in latitude of the second order.

These equations of the motion in latitude, suppose the mean hourly motion to be $32'. 56'',5$ in the orbit. To reduce these to their true values, with the true motion in the orbit, or the sum of twenty-seven equations diminished by $2''$, we take in Table LXVI. two factors; the first N , is to multiply the equations of the first order; the second N^2 , is to multiply the equations of the second order. The two products united according to their signs, will be the motion for the hour following the given instant; if the sign of the first product be changed, you have the motion for the preceding hour.

If A = the mean anomaly of the Moon; ϖ = the mean longitude of the Moon; $\odot$ = the true longitude of the Sun, a it's mean anomaly; $D = \varpi - \odot$; $d = \varpi + N$; ϖ' , ϖ'' , ϖ''' , A' , D' , d' , the same quantities successively corrected; then the following Table contains the formation of the Arguments, and their Equations. These have been determined by theory, and the coefficients corrected by observation. The Tables contain the value of these equations, computed to every degree, half degree, twenty, ten, &c. minutes, as circumstances might require. After establishing the mean motion of the Moon, these equations must be considered as so many deviations from it, to which the Moon is subject. The equation of the center is an irregularity arising

arising from it's motion in an ellipse about one of the foci; and the other equations arise from the disturbing forces of the Sun and Planets. To the mean motion therefore, that is, to the place where the Moon would have been if it's motion had been uniform, we must apply all these equations, in order to determine the place where the Moon actually is. The formation of the Arguments are contained in the following Table.

Numbers.	Formation of the Arguments.	Equations.
I	a	$- 11'. 11,8 \sin. a - 6'' \sin. 2 a.$
II	$\zeta - \odot + a = D + a$	$+ 11,5 \sin. (D + a).$
III	$D - a$	$+ 4,9 \sin. (D - a).$
IV	$D + A$	$- 2,6 \sin. (D + A) - 4'',6 \sin. 2 (D + A).$
V	$D - A$	$- 21,4 \sin. (D - A) - 58'',6 \sin. 2 (D - A).$
VI	$2 D - A = V + D$	$+ 80. 29,5 \sin. (2 D - A) + 35'',4 \sin. 2 (2 D - A).$
VII	$2 D + A = VI + 2 A$	$- 57,8 \sin. (2 D + A).$
VIII	$2 D - 3 A = VI - 2 A$	$- 2,1 \sin. (2 D - 3 A).$
IX	$A - a$	$+ 39,3 \sin. (A - a).$
X	$2 D + a$	$+ 53,9 \sin. (2 D + a).$
XI	$2 D - a$	$+ 1. 16,5 \sin. (2 D - a).$
XII	$D - A + a = V + a$	$+ 1,1 \sin. (D - A + a).$
XIII	$VI + a$	$+ 2. 4,6 \sin. (2 D - A + a).$
XIV	$VI - a$	$+ 47,6 \sin. (2 D - A - a).$
XV	$VII + a$	$+ 2,2 \sin. (2 D + A + a).$
XVI	$VII - a$	$+ 1,3 \sin. (2 D + A - a).$
XVII	N	$- 6,8 \sin. N.$
XVIII	$\odot + N$	$- 1. 2,5 \sin. (\odot + N).$
XIX	$XVIII + V$	$- 6,4 \sin. (\zeta + N - A).$
XX	$VI + 2 D$	$- 10,6 \sin. (4 D - A).$
XXI	$XX - 2 A$	$+ 1,1 \sin. (4 D - 3 A).$
XXII	$2 A - X$	$- 1,2 \sin. (2 A - 2 D - a).$
XXIII	$VI - 2 d$	$- 6,9 \sin. (2 D - A - 2 d).$
XXIV	$XXIII + 2 A$	$- 8,8 \sin. (2 D + A - 2 d).$
Corr. mean anom. $= - 22'. 17'',3 \sin. a - 11'' \sin. 2 a + \text{sum of 24 preceding equations.}$		
Corr. sup. node $= + 9'. 0'' \sin. a + 4'' \sin. 2 a'.$		
XXV	A'	$\{ 6'. 18'. 12'',2 \sin. A' + 12'. 56'',4 \sin. 2 A'.$
		$\{ + 37'',3 \sin. 3 A' + 1'',9 \sin. 4 A' + 0',1 \sin. 5 A'.$
XXVI	$(D + 25 \text{ equ.})$	$\{ - 2'. 2'',1 \sin. D' + 35'. 41'',7 \sin. 2 D'.$
		$\{ + 3'',3 \sin. 3 D' + 7'',3 \sin. 4 D'.$
XXVII	$2 d' - XXV$	$- 1'. 24'',4 \sin. (2 d' - A').$
XXVIII	$\zeta''' + N'$	$- 6' 48'',8 \sin. (\zeta''' + N') + 2'',1 \sin. 2 (\zeta''' + N').$

The Four last Tables are useful in Calculations made from the Observations of the Passage of the Moon over the Meridian.

TABLE I. gives the number of seconds of the Lunar disc which pass the meridian in one second of sidereal time, which we call the number M . The Arguments are, the declination and the motion in right ascension in 24 mean Solar hours.

TABLE II. contains the correction of the zenith-distance of the Moon at the time of the observation when the limb passes the meridian, in order to give the zenith-distance when the center passes the meridian.

TABLE III. gives the sidereal time in the interval between the Moon's limb touching the meridian wire, and the passage of the center over it, supposing the semi-diameter to be $16'. 40'' = 1000''$; and hence the time for any other semi-diameter is readily found.

TABLE IV. gives the factors by which the equatorial interval of the wires of a transit telescope must be multiplied, in order to have the time which the Moon employs in passing from one wire to another. The Table is made for the latitude of Paris; but it may be made to answer for other latitudes not differing much from it, if we make a change of parallax which shall destroy the effect of the change of latitude. If L be the latitude of Paris, L' the change of latitude, p the horizontal parallax, and p' the change of parallax as above stated, z the zenith-distance by observation. Then,

$$p' = -p \times \sin. L' \times \tan. L.$$

For Greenwich, therefore, the horizontal parallax must be diminished $3'$.

For example: Let us take the observation of the passage of the Moon over the meridian at Greenwich, Nov. 15, 1796; the declination $23^\circ. 27'$
 $= L - z;$

$= L - z$; hor. par. $54'$; the semi-diameter $14'. 47''$, and the daily motion in right ascension $12^\circ. 42'$.

With the declination $23^\circ. 27'$, and motion $12^\circ. 42'$, we find in Table I. $M = + 13''. 27$.

The zenith-distance was observed $20''$ after the first limb; hence, $d^* = 20'' + b$, or $(b - d) = -20''$; therefore $\frac{1}{2} \mathcal{C} + M(b - d) = 860'', 46 = N$. And with $N = 860$, $D = 23^\circ. 27'$, we have, Table II, $D = (L - z) - 0'', 7$; this must be considered as a correction of D .

With $D = 23^\circ. 27'$, and $12^\circ. 42'$, Table III. gives $75'', 3$; which multiplied by $\frac{14'. 47''}{16'. 40''} = \frac{887}{1000} = 0,887$, gives $66'', 79$ the semi-diameter in sidereal time.

The parallax $54'$ diminished $3'$ for Greenwich is $51'$, with which and $13'', 27$, we find in Table IV. the factor $1, 12$, with this we multiply the equatorial intervals;

Equ. int. . .	$1'. 13'', 15$	$36'', 52$	$36'', 54$	$1'. 13'', 22$
	$1, 12$	$1, 12$	$1, 12$	$1, 12$
	$+ 1. 21, 93$	$+ 0. 40, 9$	$- 0. 40, 92$	$- 1. 22, 02$
Times obs.	$23. 4, 6$	$23. 48, 7$	$25. 8, 0$	$25. 49, 5$
Passage . . .	$24. 26, 53$	$24. 26, 6$	$24. 27, 08$	$24. 27, 48$

The mean is $24'. 26'', 698$; the passage observed at the middle wire was $24'. 26'', 8$; and the middle of all the wires not corrected was $24'. 26'', 92$; the corrections are therefore unnecessary when the passages at all the wires are observed.

* d is the instant when the zenith-distance is taken; b is the instant when the limb passes the meridian.

USE OF THE TABLES OF THE MOON.

To calculate the Place of the Moon for any given Mean Time at Greenwich.

To find the LONGITUDE.

In Table I. take the epoch of the mean longitude of the Moon, its mean anomaly, and supplement of the node for the given year, with the secular equations, and place them as in the Type of the Calculation. The secular equations of the longitude and mean anomaly are always additive, that of the node always subtractive. Take also the correction from the Third of the Solar Tables.

In Table V. take out the motions for the given *day*; and in Table VI. the motions for the *hours*, *minutes*, and *seconds*, and place them under the epochs.

Add up the three columns, and you have the quantities ζ , A , N , that is, the mean longitude, the mean anomaly, and supplement of the node, which is Argument XVII.

Under ζ place $\odot$ the Sun's true longitude.

Make $D = \zeta - \odot$, and under D , place the Sun's *mean* anomaly $= a$.

$$\text{ARG. I.} = a.$$

$$\text{ARG. II.} = (D + \text{Arg. I.})$$

$$\text{ARG. III.} = (D - \text{Arg. I.})$$

Write down D again, and under it place A ; then,

$$\text{ARG. IV.} = (D + A.)$$

$$\text{ARG. V.} = (D - A.)$$

$$\text{ARG. VI.} = (\text{Arg. V.} + D.)$$

Under Arg. VI. place $2A$; then,

$$\text{ARG. VII.} = (\text{Arg. VI} + 2A.)$$

ARG.

$$\text{ARG. VIII.} = (\text{Arg. VI.} - 2 A.)$$

$$\text{ARG. IX.} = (A - \text{Arg. I.}) = (A - a.)$$

$$\text{ARG. X.} = (\text{Arg. VII.} - \text{Arg. IX.})$$

$$\text{ARG. XI.} = (\text{Arg. VI.} + \text{Arg. IX.})$$

$$\text{ARG. XII.} = (\text{Arg. V.} + \text{Arg. I.})$$

$$\text{ARG. XIII.} = (\text{Arg. VI.} + \text{Arg. I.})$$

$$\text{ARG. XIV.} = (\text{Arg. VI.} - \text{Arg. I.})$$

$$\text{ARG. XV.} = (\text{Arg. VII.} + \text{Arg. I.})$$

$$\text{ARG. XVI.} = (\text{Arg. VII.} - \text{Arg. I.})$$

$$\text{ARG. XVII.} = N.$$

$$\text{ARG. XVIII.} = (\odot + N.)$$

$$\text{ARG. XIX.} = (\text{Arg. XVIII.} + \text{Arg. V.})$$

$$\text{ARG. XX.} = (\text{Arg. VI.} + 2D.)$$

$$\text{ARG. XXI.} = (\text{Arg. XX} - 2 A.)$$

$$\text{ARG. XXII.} = (2 A - \text{Arg. X.})$$

Make $d = \odot + N$; then,

$$\text{ARG. XXIII.} = (\text{Arg. VI} - 2 d.)$$

$$\text{ARG. XXIV.} = (\text{Arg. XXIII.} + 2 A.)$$

In Table XXXI. take the equation A of the mean anomaly of the Moon, and place it under it's anomaly.

Under Argument XXIV. place Argument N , and under it equation N , taken from Table XXXII.

From the Tables, take the equations corresponding to the twenty-four Arguments, and place them in the Column of mean anomaly. These equations being all additive, take their sum and place under equation A ; then,

$$\text{ARG. XXV.} = (A + \text{equat. } A + \text{sum of the twenty-four equations.})$$

With this Argument enter Table XXXIII, and take out the equation of the center, and put it under the sum of the twenty-four equations; under which,

which, place ζ ; and the sum of these three quantities gives ζ' longitude once corrected.

$$\text{ARG. XXVI.} = (\zeta' - \odot.)$$

With which, in Table XXIV, take Equation 26.

Equation 26 + ζ' (standing 3 lines above) = ζ'' longitude twice corrected.

Place ζ'' under equation N , and make $d' = \zeta'' + N + \text{equat. } N$, and $N + \text{equat. } N = N'$; then,

$$\text{ARG. XXVII.} = (2d' - \text{Arg. XXV.})$$

$$\text{ARG. XXVIII.} = (d' + 11^{\circ}. 29^{\circ}. 58' + \text{equat. } 27.)$$

In the next page, take ζ'' in two separate columns.

In the First Column, make $\zeta'' + 27 \text{ equat.} + 11^{\circ}. 29^{\circ}. 20' = \zeta'''$; and in the Second, make $\zeta'' + 27 \text{ equat.} + 28 \text{ equat.} = \zeta^{iv}$ longitude four times corrected.

To ζ^{iv} apply the nutation, as in the calculations for the Sun, and you get the *true longitude* of the Moon.

To find the LATITUDE.

To form the Arguments for the *Latitude*, make $D'' = \zeta''' + \odot$. Then,

$$\text{ARG. I.} = (\text{Arg. XXVIII. of longitude.})$$

$$\text{ARG. II.} = (2D'' - \text{Arg. I.})$$

$$\text{ARG. III.} = (\text{Arg. I.} - a.)$$

$$\text{ARG. IV.} = (\text{Arg. I.} - A.)$$

$$\text{ARG. V.} = (\text{Arg. IV.} - A.)$$

$$\text{ARG. VI.} = (\text{Arg. V.} - A.)$$

$$\text{ARG. VII.} = (\text{Arg. II.} + a.)$$

$$\text{ARG. VIII.} = (\text{Arg. II.} - a.)$$

$$\text{ARG. IX.} = (\text{Arg. II.} + A.)$$

ARG.

$$\text{ARG. X.} = (\text{Arg. II.} - A.)$$

$$\text{ARG. XI.} = (\text{Arg. X.} - A.)$$

$$\text{ARG. XII.} = c''.$$

The sum of the corresponding twelve equations, regard being had to their signs, gives the distance of the Moon from the north pole of the ecliptic.

To find the EQUATORIAL PARALLAX.

The thirteen Arguments for the equatorial parallax, are those of longitude; and the equations are taken from Tables XXXIX, XL, XLI, XLII.

To find the SEMI-DIAMETER.

The semi-diameter of the Moon is found from her equatorial parallax in Table XLIII.

The augmentation of her semi-diameter is taken from Table XLIV.

Suppose the semi-diameter to be $15'. 21'',69$, and the zenith-distance $= 34^\circ. 52' = 33^\circ + 1^\circ,8666$; then, we have

Zen. dist. 33° , semi-diam. $15'$		$7'',88$
For 3° var. alt. we have 63; $\therefore$ for 1°		$0,21$
for $0^\circ,8$		$0,17$
for $0^\circ,0666$		$0,01$
For $30''$ var. semi-diam. we have $0'',6$;		
$\therefore$ for $20''$		$0,40$
for $1''$		$0,02$
for $0'',07$		$0,01$
Augmentation =		<u>$8,7$</u>

To find the LOGARITHM of the RADIUS VECTOR.

The latitude of Greenwich is $51^\circ. 28'. 40''$, or $51^\circ. 28',7$; and by Table XLV, for 51° the logarithm of radius is 9,9991277 to the ratio 299 : 300; and it changes 247 for $60'$; hence, the change for $28',7$ is 118; therefore the logarithm of the radius = 9,9991159.

To find the HORIZONTAL PARALLAX.

For the latitude of Greenwich, for the ratio 299 : 300, we must take the arithmetical complement of 9,9991159, which is 0,0008841; this we must subtract from the logarithm of the equatorial parallax, to get the logarithm of the horizontal parallax for Greenwich, because the radii are as the horizontal parallaxes.

To find the ANGLE which the VERTICAL LINE makes with the RADIUS.

For the latitude at Greenwich, by Table XLVI, the angle for 51° is $11'. 14'',1$; and the decrease for 1° is $5'',3$; hence, for $28',7$ it is $2'',5$; therefore the angle is $11'. 11'',6$, for the ratio 299 : 300.

To find the HORARY MOTION in LONGITUDE.

The horary motions in longitude are taken with the arguments of longitude, placed at the Head of the Tables. The small equations are united in Table XLVII.

Equation 6. comes next; and after that, Equation 25, which has two Parts; the Second has for one of its Arguments, the sum of the preceding equations. Thus, before we find Equation 25, we must take the sum of the twenty-four equations, which in our Example is $1'. 34'',78 = 94'',78$. With $94'',78$, or $95'$, and Argument XXV. = $3'. 17'. 37'. 35'',1$, or $3'. 17',6$, we find the equation $4'',40$; but $95'$ is $0'',22$ too much in the sum; and the difference is $0'',18$ for $5''$; hence, $5'' : 0'',22 :: 0'',18 : 0'',0079 = 0'',01$ nearly; and as the equation *increases* from $95'$ to $90'$, $0'',01$ must be added to $4'',40$; hence, the Second Part is $4'',41$.

Equation 26. has also two Parts; in our Example, the first is $15'',76$, and this is one of the Arguments of the Second Part; and the other
Argument

Argument is the sum of the twenty-five first equations $31'. 19'', 2$ — horary motion $\odot 2'. 27'', 3 = 28'. 52''$.

With $28'. 40''$ and $15''$, Table LII. gives $12'', 58$

The variation for $20''$ in the vertical Argument is $- 0'', 26$;

Therefore for $10''$ it is $- 0, 13$

for $2''$ it is $- 0, 03$

The variation for $5''$ in the horizontal Argument is $- 0'', 49$;

Therefore for $0'', 76$ it is $- 0, 07$

Hence, the equation is $12, 35$

Equation 27. has two Parts; in our Example, the First Part in Table LIII. is $1'', 50$, and is one of the Arguments of the Second Part; the other Argument is, sum of all the preceding equats. + equat. 25 + equat. 26. $- 31'. 12'' = 30'. 58'', 77$. These two Arguments give in Table LIV. $9'', 96$ for the Second Part of this equation.

The First Part of Equation 28, Table LV, in our Example, is $0'', 68$; and the sum of the twenty-seven equations is $31'. 59''$; with these two Arguments, the Second Part is found in Table LVI. to be $- 9'', 76$, for this part is always subtractive. Thus you get the horary motion in longitude $31'. 49'', 69$. But this is the motion for that hour, whose middle is the given time; that is, from $1^h. 52'. 25''$ to $2^h. 52'. 25''$.

To find the motion for an hour *before* the given time and an hour *after*, we must have recourse to Equations of the Second Order, which have still the same Arguments of longitude, and the fifteenth must be increased by VI. The last is always subtractive.

The sum of these Equations is $- 1'', 237$, or $- 1'', 24$; add this to $31'. 49'', 69$, and you have $31'. 48'', 45$ the motion for the hour following the given time. Change the sign of $- 1'', 24$, and add it to $31'. 49'', 69$, and you have $31'. 50'', 93$ the motion for the preceding hour.

The

The longitude for 2 ^h . 22'. 25" is	8°. 6'. 53'. 39"
Subtract	31. 51
The longitude at 1 ^h . 22'. 25"	8. 6. 21. 48
Add to the same longitude	31. 48,45
The longitude at 3 ^h . 22'. 25"	8. 7. 25. 27,45

To obtain the horary motions for an hour or two on each side the given time, we proceed thus;

0. 52. 25	32. 0,85	6,20	2,48
1. 22. 25	31. 54,65	3,72	2,48
1. 52. 25	31. 50,93	1,24	2,48
2. 22. 25	31. 49,69	1,24	2,48
2. 52. 25	31. 48,45	3,72	2,48
3. 22. 25	31. 44,73	6,20	2,48
3. 52. 25	31. 38,53		

Against 2^h. 22'. 25" write the horary motion in longitude 31'. 49",69, found by the equation of the First Order. In the next Column put 1",24, 1",24 the equation of the Second Order, the sum of which is 2",48 the second difference. To 1",24, add 2",48, upwards and downwards, and we get 3",72, 6",20 for the first difference; which added to and subtracted from 31'. 49",69, we get the horary motions for the times in the First Column.

This is not perfectly correct, but sufficiently so for the duration of the longest eclipse.

To find the HORARY MOTION in LATITUDE.

The Arguments are the same as those for the latitude; and in Table LXIV, when the Argument for the latitude is more than 6°, take the complement to 12°. The constant quantity - 5" is always to be applied. The sum of the equations, in our Example, is - 2'. 51",87 = - 171",87.

The

The equations of the Second Order are $-0'',149$ and $+0'',011$, and the sum $-0'',138$.

All these equations suppose the true horary motion in the orbit to be $32'. 56'',5$; but the true horary motion is the sum of the twenty-seven equations $-2'' = 31'. 56'',86$ or $31'. 57''$, with which enter Table LXVI. and take out $N = 0,9699$; and hence, $N^2 = 0,941$. Therefore the product $-171'',87 \cdot N = -166'',7$ the true motion in latitude, in respect to the equations of the First Order; or the motion for that hour, whose middle is the given time; that is, from $1^h. 52'. 25''$ to $2^h. 52'. 25''$.

The product $-0'',137 \cdot N^2 = -0'',13$ the sum of the equations of the Second Order. Hence, the horary motion for the hour preceding the given time is $-166'',7 - 0'',13 = -166'',83 = -2'. 46'',83$; and for the following hour it is $-166'',7 + 0'',13 = -166'',57 = -2'. 46'',57$. The sign $-$ indicates the motion towards the south pole.

Hence we form, as before for the longitude, the following Table, which gives the horary motion for an hour or two on each side the given time.

0. 52. 25	2. 45,53	0,65	0,26
1. 22. 25	2. 46,18	0,39	0,26
1. 52. 25	2. 46,57	0,13	0,26
2. 22. 25	2. 46,70	0,13	0,26
2. 52. 25	2. 46,83	0,39	0,26
3. 22. 25	2. 47,22	0,65	0,26
3. 52. 25	2. 47,87		

EXAMPLE. To calculate the Place of the Moon for September 25, 1797, at $2^h. 22'. 25''$ mean Time at Greenwich.

The longitude of the Sun for the same instant is $6^\circ. 2'. 57'. 29'' = \odot$; his mean anomaly $8^\circ. 25'. 23'. 55'' = a$; and his horary motion $2'. 27'',3 = m$.

The whole of the calculation, according to the preceding rules, is arranged in the following Tables. When the figure 2 is put against or under any Argument, it means the Second Part of that Argument.

CALCULATION

CALCULATION OF THE MOON'S PLACE.

		Mean Long. ζ		Mean Anom. ζ			Sup. of Node
Formation of the Arguments.	Sec. Equ. T. V. Sun 1797, Sep. 25. 2 ^h 22' 25"	12,8 0,3 10. 20. 44. 36,6 9. 8. 5. 52,2 1. 5. 52,9 12. 4,7 13,7	Arguments.	41,6 0,3 7. 7. 13. 40,3 8. 8. 21. 10,0 1. 5. 19,5 11. 58,6 13,6	Formation of the Arguments.	Arguments.	-7,1 -0,3 8. 28. 48. 19,6 14. 8. 20,7 15,9 2,9
	ζ $\odot$	8. 0. 8. 53,2 6. 2. 57. 29,0	A Equat. A 24 Equats.	3. 16. 53. 3,9 11. 28. 22. 11,2 2. 22. 20,0	N $\odot + N$	XVII XVIII V	9. 12. 56. 51,7 6. 2. 57. 29 3. 15. 54 10. 10. 18
$\zeta - \odot$ Anom. $\odot$	D I	1. 27. 11. 24 8. 25. 23. 55	XXV	3. 17. 37. 35,1	XVIII + V	XIX	1. 26. 12
$D + I$ $D - I$	II III	10. 22. 35 5. 1. 47	Arg.	Equats. of Long.		VI 2D	0. 7. 30 3. 24. 23
Anom. ζ	D A	1. 27. 11. 24 3. 16. 53. 4	I II III IV V VI VII VIII IX X XI XII XIII XIV XV XVI XVII XVIII XIX XX XXI XXII XXIII XXIV	0. 0. 23. 8,6 13,0 20,1 11,7 3. 14,1 ... 1. 43. 39,2 1. 38,2 2,1 45,6 1. 18,2 1. 23,0 0,5 55,6 1. 46,6 4,0 0,5 16,6 2. 32,9 4,1 11,0 0,0 1,4 14,5 18,5	VI + 2D 2A XX - 2A	XX 2A XXI	4. 1. 53 7. 3. 46 8. 28. 7
$D + A$ $D - A$ $D + V$	IV V VI	5. 14. 4 10. 10. 18. 20 0. 7. 29. 44			2A - X	2A X XXII	7. 3. 46 0. 19. 47 6. 13. 59
$2A$		7. 3. 46				ζ N	8. 0. 8. 53,2 9. 12. 56. 51,7
VI + 2A VI - 2A	VII VIII	7. 11. 16 5. 3. 44			$\zeta + N$	d	5. 13. 5. 45
a	A I	3. 16. 53 } 0 ^s . 12 ^o 8. 25. 24 } = A + I				2d VI	10. 26. 11. 30 0. 7. 30
$A - I$	IX VII	6. 21. 29 7. 11. 16			VI - 2d	XXIII 2A	1. 11. 19 7. 3. 46
VII - IX	X	0. 19. 47			XXIII + 2A	XXIV	8. 15. 5
	VI IX	0. 7. 30 6. 21. 29			N	XVII Equat. N ζ''	9. 12. 56. 51,7 11. 29. 13. 2,5 8. 7. 28. 27,2
VI + IX	XI	6. 28. 59			d'	$\zeta'' + N'$	5. 19. 38. 21,4
	V I	10. 10. 18 8. 25. 24			2d'	2($\zeta'' + N'$)	11. 9. 16. 42,8
V + I	XII	7. 5. 42				XXV	3. 17. 37. 35
	VI I	0. 7. 30 8. 25. 24	Sum 24 Eq. 25 th Equ. ζ	0. 2. 22. 20,0 0. 3. 52. 38,0 8. 0. 8. 53,2	2d' - XXV	XXVII	7. 21. 39. 8
VI + I VI - I	XIII XIV	9. 2. 54 3. 12. 6	ζ' - $\odot$	8. 6. 23. 51,2 6. 2. 57. 29	d'	$\zeta'' + N'$ Const. Quan. Equat. 27	5. 19. 38. 21,4 11. 29. 58. 0,0 3. 6,2
	VII I	7. 11. 16 8. 25. 24	XXVI Equ. 26	2. 3. 26. 22 1. 4. 36		XXVIII	5. 19. 39. 27,6
VII + I VII - I	XV XVI	4. 6. 40 10. 15. 52	$\zeta' + 26 \text{ Eq.} = \zeta'$	8. 7. 28. 27,2			

CALCULATION OF THE MOON'S PLACE.

		Arg. of Latit.		Longitude.	Argument.	Hor. Mot. Long. 1 st Order.	Second Order.	
Formation of the Arguments.	ζ'' Equ. 27, Const. Qu.	8. 7. 28. 27,2 3. 6,2 11. 29. 20. 0,0	ζ'' Equat. 27 Equat. 28	8. 7. 28. 27,2 3. 6,2 11. 29. 22. 23,7	I II III IV V VII VIII IX X XI XIII XIV XV XX XXI XXIII XXIV XXV + I VI	.. 0. 0,53 0,19,06,12,12 2,79,00,03 1,93,16 1,09,20,07,05,18,43,02,09,75 .. 1. 25,97	IV VII IX X XI XIII XIV XV XX VI XXV XXVI XXVII XXVIII XXV. 2 XXVII XXVIII. 1 XXVIII. 2 Sum	0,001 7 3 6 ... 16 ... 10 0 0 6 .. 0,142 .. 0,161 ... 93 ... 1 ... 48 .. 0,015 .. 0,550 ... 1 -2,297 -1,237
XII	ζ''' $\odot$	8. 6. 51. 33,4 6. 2. 57. 29	ζ^{iv} Nutation	8. 6. 53. 57,1 -17,2				
$\zeta'' - \odot$	D''	2. 3. 54. 4	ζ^v	8. 6. 53. 39,9				
XXVIII Lon.	$2D''$ I	4. 7. 48. 8 5. 19. 39. 27	Argument.	Equatorial Par.				
$2D'' - I$	II	10. 18. 8. 41	XXV VI XXVI	 54. 44,4 1. 14,9 11,1				
Mean an. $\odot$	a	8. 25. 24	I V VII IX X XI XIII XIV XVIII XXVII	 0,3 1,7 0,2 0,0 1,3 0,1 1,1 0,4 0,1 1,4				
$I - a$	III	8. 24. 15	Parallax	56. 17,0	XXV XXV. 2	1. 34,78 29. 40,01 4,41	Latitude, Second Order.	
	A	3. 16. 53	Semi-diam.	15. 21,68		31. 19,20	I II	-0',149 +0',011
$I - A$	IV	2. 2. 46	Alt. Pole	51°. 28'. 40"	XXVI 2	15,76 12,35		-0',138
$IV - A$	V	10. 15. 53	Log. Rad.	9,9991159	XXVII 2	1,50 9,90	Equat. 31'. 58",77	
$V - A$	VI	6. 29. 0	Angle . .	11'. 11",6	XXVIII	0,68	XXV 29. 44,4 XXVI 28,11 - 31. 12	
$II + a$	VII	7. 13. 33	Argument.	Hor. Mot. in Lat.				
$II - a$	VIII	1. 22. 45	I Const. Qu.	.. -2. 55,18 .. - . 5,0	XXVIII. 2	31. 59,45 - 9,76	30. 59. 28	
$II + A$	IX	2. 5. 2	II III	.. + . 7,49,03	Mot. Long. 2 ^d Order	31. 49,69 + 1,24	Arg. XXVII. 2 Tab. LIV.	
$II - A$	X	7. 1. 16	V VI	,47,01	Hour foll. Hour prec.	31. 48,45 31. 50,93	- 171'87 31. 57 N = 0,9699	
$X - A$	XI	3. 14. 23	VII VIII	,06,02	Mot. Lat.	-2. 46,70 + 0,13	Prod. - 166,7	
ζ'''	XII	8. 6. 52	IX X	,05,00	Hour foll. Hour prec.	-2. 46,83 -2. 46,57	-0',137 N ² = 0,941	
	Argument	Equ. of Latit.	XI XII	,05,13			Prod. - 0,13	
	I	88. 54. 17,5	Hor. Mot. in Lat.	-2. 51,87				
	II	 14. 40,9						
	III	,00						
	IV	 2,0						
	V	 7,7						
	VI	 1,0						
	VII	 15,2						
	VIII	 0,7						
	IX	 0,2						
	X	 7,7						
	XI	 10,2						
	XII	 0,6						
	Pol. dist.	89. 9. 43,7 90						
	Lat. N.	0. 50. 16,3						

Many

Many of the Equations for the horary motion in longitude have two or three Parts, arising from a change in the whole or part of the Argument. Equation XXV. has two Parts; the first is found in Table XLIX, and the second in Table L. Equation XXVI. has two Parts; one in Table LI, and the other in Table LII. Equation XXVII. has two Parts; one in Table LIII, and the other in Table LIV. Equation XXVIII. has one Part in Table LV, and the other in Table LVI. These are Equations of the First Order. Of those of the Second Order, Equation XXV. has two Parts; one in Table LVII, and the other in Table LVIII. Equation XXVII. has two Parts; one in Table LVII, and the other in Table LIX. Equation XXVIII. has three Parts; one in Table LVII, one in Table LX, and the other in Table LXI.

A METHOD of Calculating the QUADRATURES and SYZYGIES of the SUN and MOON; and of the DAYS when ECLIPSES may be expected.

Instead of the astronomical epacts, the Arguments M , A , B , N are used for the operation.

EXAMPLE. *To find the Quadratures and Syzygies of the Moon for January, 1808.*

The Argument A is mean long. $\odot$ — mean long. $\odot$ — 22, and the numbers taken from Table VI. of the Sun, is A' the correction of A . And as the whole circle is divided into 1000 equal parts, we must find when A is nearly 250, 500, 750 and 0, or 1000; the first and third give the quadratures; the second and fourth, the syzygies.

Take the epochs of M and A for the year, and seek in the motions of A for

A for the proposed months, those which added to the epoch, will give the above numbers, as nearly as possible; take also the corresponding values of M , in order to obtain the correction of A .

For the epochs for 1808, $M=350$, $A=81$, and these are for noon; of which latter, the complement to 250 is 169. Take the motion 169 for 6 days for A , and the motion 181 for M ; and we have for January 6, $M=531$, $A=250$.

To these add the motions $M=254$, $A=236$ for 7 days; and we have for January 13, $M=785$, $A=486$.

To these add the motions $M=290$, $A=270$, for 8 days; and we have for January 21, $M=75$, $A=756$.

To these add the motions $M=254$, $A=236$ for 7 days; and we have for January 28, $M=329$, $A=992$.

With the Arguments M , A , for January 6, 13, 21, 28, enter Table VI. of the Sun, and find the corrections of A , and call the corrected values A' , and A' is the true angular distance of the Sun from the Moon, nearly; and considering how much these values of A' differ from 250, 500, 750, 0, or 1000, respectively, we get the distances from the quadratures and syzygies; and turning these into time by Table V. of the Sun, we get nearly the times of these phases. According as the values of A' are beyond or short of the above numbers, we must subtract or add the distances in time, from or to January 6, 13, 21, 28, at noon. The whole operation may stand thus:

	M	A	Tab. VI.	A'	Dist. of Phase.	Dist. in Time.	Time.	Phases.
1808	350	81						
5 days	181	169	+					
Jan. 6	531	250	18	268	-18	-13 ^h	5 Jan. 11 ^h afternoon.	First Quart.
7 days	254	236						
Jan. 13	785	486	8	494	+ 6	+ 4 ⁿ . 12	13 Jan. 4 ^h afternoon.	Full Moon.
8 days	290	270						
Jan. 21	75	756	32	788	- 38	- 27 ⁿ	20 Jan. 9 ^h morning.	Last Quarter.
7 days	254	236						
Jan. 28	329	992	33	25	- 25	- 18 ⁿ	27 Jan. 6 ^h afternoon.	New Moon.

We must here observe, that this method will not, with certainty, give the times of the phases very near the truth. The errors are sometimes considerable.

To find the ECLIPTIC CONJUNCTIONS.

Here we must use the Arguments B, N . Now the conjunctions must happen at or near the node.

In an eclipse of the *Sun*, $A' = 0$, or 1000, the bodies being together; and the Sun's and Moon's longitudes must be the same as that of the node, or nearly so. Now as B is the heliocentric longitude of the Earth, $B + 500 = \odot$ is the Sun's longitude. Also, as N is the supplement of the longitude of the ascending node, $1000 - N$ is it's longitude; and adding 500 to it, we get the longitude of the other node. Hence, $B + 500$ must be equal to $1000 - N$, or $1500 - N$, or nearly so; or B must be nearly equal to $500 - N$, or $1000 - N$; or $B + N = 500$ or 1000, nearly.

In an eclipse of the *Moon*, $A' = 500 = \zeta - \odot$; and hence, $\zeta = \odot + 500 = B$, which must be equal to, or nearly so, $500 - N$, or $1000 - N$, or $B + N = 500$ or 1000, nearly. Now these differ by 500. Take therefore the supplement of N , and add 500 to it, and one of them must be the value of B , or nearly so.

We must therefore find in each case, when these conditions will be answered.

If the dist. ζ from node be $\left\{ \begin{array}{l} \text{below } 25 \\ \text{above } 35 \end{array} \right\}$ an ecl. ζ is $\left\{ \begin{array}{l} \text{certain} \\ \text{impossible.} \end{array} \right\}$

Between 25 and 35 it is doubtful, and therefore we must calculate.

If the dist. $\odot$ from node be $\left\{ \begin{array}{l} \text{below } 38 \\ \text{above } 53 \end{array} \right\}$ an ecl. $\odot$ is $\left\{ \begin{array}{l} \text{certain} \\ \text{impossible.} \end{array} \right\}$

Between 38 and 53 it is doubtful, and therefore we must calculate.

To

To find when there will be ECLIPSES in 1808.

In the epochs for 1808, $M=350$, $A=81$, $B=277$, $N=337$. Hence, $1000 - N = 663$, and $663 + 500 = 1163$, neglecting 1000. There may be eclipses therefore, when B is about 663 or 1163. But the nodes being retrograde 27 in 6 months, we will take 636 and 1136 for a mean for the whole year. We must therefore find when B is equal to, or nearly so, these numbers, in conjunction and in opposition; and when $A'=0$ in the former case, and $= 500$ in the latter, or nearly so.

At the beginning of the year, $M=350$, $A=81$, $N=337$, and $B=277$; the difference between which last and 636, is 359; B therefore must have a motion of 359. Take therefore in Solar Table IV. May 10, for which $M=718$, $A=397$, $B=356$, $N=19$; add these to the epochs, and we get for May 10, $M=68$, $A=478$, $B=633$, $N=356$. And by Table VI. the correction for A is 27, which gives $A'=505=500+5$; and in Table V. 5 answers to $3\frac{1}{2}$ hours, and 0 for B^* . Also $B+N=989$, wanting 11 of the node. Hence, subtracting $3\frac{1}{2}$ hours from May 10 at noon, we get May 10, at $8\frac{1}{2}$ hour of the morning, at which time A' must be very nearly 500; and $B+N$ being within the ecliptic limits, there will be an eclipse of the *Moon*.

In Table IV. take the motion for 14 days, and we find $M=508$, $A=473$, $B=38$, $N=2$. Add these to May 10; and we get for May 24, $M=576$, $A=951$, $B=671$, $N=358$. And by Table VI. the correction for A is 17, which gives $A'=968=1000-32$; and in Table V, 32 answers to 23 hours, and 3 for the correction of B . And adding 23 hours to May 24 at noon, we get May 25, 11 hour of the morning, at which time A' must be very nearly 1000; and $B+N=32$ being within the ecliptic limits, there must be an eclipse of the *Sun*.

Subtract

* The correction for B is to be *subtracted* when A is *above* 500, or 0; and *added*, when *below* 500 or 1000; it being to those points to which we want to reduce B .

Subtract the motion for 14 days, and we get for April 26, $M=560$, $A=5$, $B=595$, $N=345$. And by Table VI. the correction for A is 17, which gives $A'=22$; and in Table V. 22 answers to $15\frac{1}{2}$ hours, which subtracted from the noon of April 26, gives April 25, half after eight in the evening, at which time $A=0$, very nearly. Also, 2 is the correction of B . Hence, $B+N=947$, wanting 53 of 1000, and therefore it is not within the ecliptic limits; hence, there will be no eclipse of the Sun.

To find whether there will be any eclipses at the next node, $B=277$ for the beginning of the year; the distance of which from 163, according to the order of the signs, is 886; this motion therefore B must have; take therefore November 20, bissextile, which gives $B=887$.

Calculating therefore as before, we find $A=57$, which being so great, we will take November 18; calculating for which, we get $A=989$, and $A'=14$; and 14 answers to 10 hours, which subtracted from November 18 at noon, gives two o'clock in the morning, at which time, $A'=0$ very nearly. Also, $B+N=542$, or 42 above 500, which is within the ecliptic limits; hence, there will be an eclipse of the *Sun*.

By subtracting 15 days motion (for we find 14 not enough), it gives November 3, and we get $A'=506=500+6$, and 6 answers to 4 hours; which gives eight o'clock in the morning, when $A=500$ nearly. Also, $B+N=489$, which is within 11 of 500, and therefore within the ecliptic limits; hence, there will be an eclipse of the *Moon*.

If from November 3, we subtract the motion for 15 days, we get October 19, and $A'=992=1000-8$, and 8 answers to 6 hours, making October 19, at six in the evening for the conjunction. Also $B=1$, and $B+N=458=500-42$, and 42 is within the ecliptic limits; hence, there will be an eclipse of the *Sun*.

The whole operation is contained in the following Table.

	<i>M</i>	<i>A</i>	<i>B</i>	<i>N</i>		<i>M</i>	<i>A</i>	<i>B</i>	<i>N</i>
1808	350	81	277	337	1808	350	81	277	337
May 10 . .	718	397	356	19	Nov. 20 . .	759	976	887	48
To May 10	68	478	633	356		109	57	164	385
		27	0	633	Nov. 18 . .	686	908	882	47
<i>Ecl.</i> ☾ . . .	<i>A'</i> =	505	633	989	To Nov. 18	36	989	159	384
14 days . .	508	473	38	2			25	1	158
	576	951	671	358	<i>Ecl.</i> ☉ . . .	<i>A</i> =	14	158	542
May 24 . . .		17	3	674	15 days . .	544	506	41	2
<i>Ecl.</i> ☉ . . .	<i>A'</i> =	968	674	32	To Nov. 3 .	492	483	118	382
	560	5	595	354			23	1	117
		17	2	593	<i>Ecl.</i> ☾ . . .	<i>A'</i> =	506	117	489
April 26 . .	<i>A'</i> =	22	593	974		948	977	77	380
					Oct. 19 . .		15	1	78
					<i>Ecl.</i> ☉ . . .	<i>A'</i> =	992	78	458

ON ASTRONOMICAL REFRACTIONS.

Let d be the *apparent* distance of a Star from the zenith, $0^m,76 (1+y)$ the observed height of the metrical barometer; x the degrees of the centesimal thermometer, of which 0 is the freezing point; $a = 60'',616$, a constant quantity determined by observation, and r = the refraction; then,

$$r = \frac{a(1+y) \tan. d}{(1+0,00375x) \left(1 + \frac{x}{5412}\right)} + \frac{\frac{1}{2}a^2(1+y)}{(1+0,00375x) \left(1 + \frac{x}{5412}\right)} \times \frac{(1+2 \cos.^2 d) \tan. d}{\cos.^2 d}$$

$$- \frac{a(1+y)}{(1+0,00375x) \left(1 + \frac{x}{5412}\right)} \times 0,00125254 \frac{\tan. d}{\cos.^2 d} - a \times 0,00375x \times 0,00125254 \frac{\tan. d}{\cos.^2 d}$$

See M. LAPLACE's *Méc. Cel.* Tom. IV. p. 27.

To

To reduce this formula into Tables, we suppose $x=0$, $y=0$; and then substitute for d , all its values from 1° to 74° . From 74° to the zenith, for greater accuracy, the following formula was used. See *Méc. Cel.* p. 264.

$$r = 2790'',2 (0,75479 - 0,049042 t^2) \sin. d \times \frac{2wt}{\sqrt{p}} + 10021'',4 \sin. 2d;$$

in which $t = 25,961924 \cos. d$, and $wt = c^t \int c^{-z} dz$, the integral being taken from $z=t$ to infinity; c being the number whose hyperbolic logarithm is 1, and $p = 3,14159$, &c.

Up to 74° , the two preceding formulæ agree.

Instead of giving the refraction in seconds, it is given in decimals.

A Table of logarithms is formed of the factor $(1+y)$ for all altitudes of the barometer, from $0^m,710$ to $0^m,810$. Another Table is formed of the

logarithm of $\frac{1}{(1 + 0,00375 x) \left(1 + \frac{x}{5421}\right)}$ from $x = -35$ to $+35$.

The logarithms taken from these two Tables (VI, VII.), with the observed altitudes of the barometer and thermometer, added to the logarithm of the mean refraction (Table IV), give the logarithm of the true refraction, which refraction is found by entering Table VIII. with the sum of these three logarithms.

It is supposed that the barometer is *metrical*, and thermometer *centesimal*, as most convenient. Table I. therefore serves to reduce the French and English barometers to the metrical barometer; Table II. to reduce REAUMUR's thermometer, and Table III. FAHRENHEIT's, to the centesimal thermometer. When the numbers of FAHRENHEIT's thermometer are below 32, either $+$ or $-$, the centesimal degrees are $-$; but they are $+$ in other cases.

The point -40 is common to both thermometers.

TABLE IV. gives the logarithm of the refraction, supposing $y=0$, and $x=10$ of the centesimal thermometer.

TABLE

TABLE VI. contains the logarithm of $(1+y)$

TABLE VII. contains the logarithm of $\frac{1}{(1 + 0,00375 x) \left(1 + \frac{x}{5412}\right)}$.

TABLE V. is the fourth term of the first expression for r , supposing $x=10$. This term is only calculated from 67° to 85° . Nearer the zenith, the term is insensible; and near the horizon, the refractions are too uncertain to apply, with accuracy, the corrections relative to the temperature and the height of the barometer.

We shall give two Examples of the use of these Tables, taken from the observations found in the manuscripts of M. MECHAIN. They were unknown at the time the Tables were constructed.

EXAMPLE I. *On January 18, 1798, the observed altitude (d) was $86^\circ. 14'. 42'' = 86^\circ. 14',7$; the altitude of the French barometer was $27^f. 4^l,5$, and of REAUMUR's thermometer 7° ; to find the refraction.*

By Table I, $27^f. 4^l,5 = 0^m,7411$ of the metrical barometer.

By Table II, $7^\circ = 8^\circ,750$ of the centesimal thermometer.

Table IV, for $86^\circ. 10'$	2,8640
4	56.8
0,7	9.9
Table VI, for $0^m,740$	9,9889
.0011	0.6
Table VII, for $8^\circ,75$	20
Logarithm of the true refraction	<u>2,8616</u>

Table

Table VIII, for 2.86	12'. 4",4
.001	1,7
.0006	1,02
True refraction	12. 7,1
Observed refraction	12. 4,2
Difference	+ 2,9
— by BRADLEY	+ 11,6
— by BURG	+ 29,6
— by MAYER	+ 3,5
— by PIAZZI	+ 5,4
— by DELAMBRE	+ 8,0

EXAMPLE II. *On January 21, 1798, the observed altitude (d) was $86^{\circ}. 15'. 20'' = 86^{\circ}. 15',33$; the altitude of the French barometer was $28^f. 3^1,3$, and of REAUMUR's thermometer $6^{\circ},5$; to find the refraction.*

By Table I, $28^f. 3^1,3 = 0^m,7657$ of the metrical barometer.

By Table II, $6^{\circ},5 = 8^{\circ},125$ of the centesimal thermometer.

Table IV, for $86^{\circ}. 10'$	2,8640
5	71
0,33	4.7
Table VI, for $0^m,765$	28
,0007	4.2
Table VII, for $8^{\circ},125$	29
Logarithm of the true refraction	2.8777

Table VIII, for 2.87	12'. 21",4
.007	12 ,11
.0007	1 ,2
True refraction	12 . 34 ,7
Observed refraction	12 . 32 ,5
Difference	+ 2 ,2
———— by BRADLEY	+ 11 ,5
———— by BURG	+ 30 ,6
———— by MAYER	+ 4 ,3
———— by PIAZZI	+ 5 ,3
———— by DELAMBRE	+ 9 ,8

All the formulæ of refraction, hitherto employed, may in like manner be reduced to a logarithmic calculation: for the general expression is under

this form; $r = \frac{(1 + \frac{u}{B})}{(1 + mx)(1 + nx)}$, in which B is the mean altitude of

the barometer, u the excess of the actual altitude above the mean height, x the excess of the actual temperature above the mean temperature, m a constant coefficient, n another coefficient which enters into the computation of the dilation of the column of mercury in the barometer from the effect of heat. Hence, from the property of logarithms,

$$\begin{aligned} \text{Log. } r &= K \left\{ \frac{u}{B} - \frac{u^2}{2B^2} + \frac{u^3}{3B^3} - \&c. - mx + \frac{1}{2}m^2x^2 - \frac{1}{3}m^3x^3 + \&c. \right\} \\ &\quad - \left\{ nx + \frac{1}{2}n^2x^2 - \frac{1}{3}n^3x^3 + \&c. \right\} \\ &= K \left\{ \frac{u}{B} - \frac{u^2}{2B^2} + \frac{u^3}{3B^3} - \&c. - (m+n)x + \frac{1}{2}(m^2+n^2)x^2 - \frac{1}{3}(m^3+n^3)x^3 + \&c. \right\} \end{aligned}$$

But on account of the smallness of n , we may neglect all the powers above the first.

In the metrical barometer, $\frac{u}{B} = \frac{u}{760}$; the mean altitude B being 0^m,76.

In the centesimal thermometer, x is expressed in the hundredth parts in the interval between the freezing point and boiling water.

M. LAPLACE supposes $m = 0,00375$, $n = \frac{1}{5412}$; hence,

$$\text{Log. } r = 0,00057.144 u - 0,00000.037595 u^2 + 0,00000.00003298 u^3 \\ - 0,0017088 x + 0,00000.3054 x^2 - 0,00000.000764 x^3.$$

The terms depending on u are contained in Table VI; and those which depend on x , in Table VII.

It is most convenient that x should begin at the temperature 10° as the best mean temperature. Making therefore $x = 10$, the value of the three terms containing x , becomes $-0,01678$, or $+9,98322$. This logarithm has been added to all those in Table VII, and subtracted from those in Table IV. By this means, although the Table may have been first calculated for 0° , of temperature, no correction becomes necessary when the temperature is 10° .

In the formula of BRADLEY, $B = 29,6$ inches, and u is expressed in inches, such, that $\frac{u}{B} = 0,033778 u$; also, $x = f - 50$, f being the degree in FAHRENHEIT's thermometer, the mean temperature being 50 ; and $m = 0,0023$; hence,

$$\text{Log. } r = +0,014672 u - 0,00024.784 u^2 + 0,00000.5582 u^3 \\ - 0,00108.57 x + 0,00000.135717 x^2 - 0,00000.0002262 x^3.$$

It may be interesting to see how the formulæ of different Authors agree at different temperatures and altitudes; this is exhibited in the following Table. As far as the zenith-distance 85° , we find a remarkable agreement between the formula of MAYER and that of M. LAPLACE; and this happens principally from this, that m adopted by M. LAPLACE differs but little from that adopted by MAYER. The Table which DELAMBRE made at Bourges, differs but a very little from the above, for the temperatures which prevailed during his observations; that is, from 10 to 20 . For other temperatures, it is very nearly that of BRADLEY. Towards the horizon he found the
refractions

A TABLE of REFRACTION, according to different Authors.

The Barometer 0^m,760.

Zenith-distance.	Therm. centes.	LAPLACE.	BRADLEY.	BURG.	MAYER.	PIAZZI.	DELAMBRE.	MAYER.
10°	— 10	11",1	10",9	11",3	11",0	11",3	11",3	10",6
	0	10,4	10,6	10,9	10,6	10,8	10,8	
	+ 10	10,3	10,1	10,5	10,2	10,3	10,3	
	20	9,9	9,3	10,1	9,9	9,9	9,8	
	30	9,6	9,1	9,7	9,6	9,5	9,4	
20	— 10	22,9	23,0	23,4	22,7	23,1	23,2	21,9
	0	22,0	21,9	22,5	21,9	22,2	22,2	
	+ 10	21,2	20,9	21,6	21,1	21,0	21,2	
	20	20,4	20,0	20,8	20,4	20,1	20,3	
	30	19,7	18,8	20,1	19,7	19,4	19,5	
30	— 10	36,2	36,5	37,1	36,0	36,8	36,9	34,7
	0	34,8	34,8	35,7	34,7	35,2	35,2	
	+ 10	33,4	33,2	34,3	33,5	33,6	38,5	
	20	32,2	31,7	33,0	32,3	32,1	32,2	
	30	31,0	29,8	31,2	31,2	30,8	30,9	
40	— 10	52,9	53,0	53,9	52,3	53,4	53,7	50,4
	0	50,8	50,5	51,8	50,4	53,9	51,2	
	+ 10	48,9	48,2	49,8	48,6	48,6	48,9	
	20	47,1	46,0	47,9	46,9	46,5	46,8	
	30	45,4	43,9	46,0	45,4	43,8	44,9	
50	— 10	75,0	75,2	76,5	74,2	75,7	76,2	74,3
	0	72,1	71,7	73,5	71,5	72,2	72,6	71,5
	+ 10	69,3	68,4	70,7	68,9	69,0	69,4	68,9
	20	66,8	65,4	68,0	66,6	65,9	66,4	66,6
	30	64,4	62,3	65,3	64,4	63,3	63,7	64,4
60	— 10	108,8	109,1	111,1	107,6	110,8	110,5	107,8
	0	104,6	100,4	104,4	103,7	105,7	105,4	103,8
	+ 10	100,6	99,3	102,7	100,0	100,9	100,7	100,1
	20	96,9	94,9	96,0	96,6	96,6	96,5	96,7
	30	93,5	90,4	92,8	93,4	92,6	92,5	93,5
70	— 10	171,8	172,5	175,8	170,1	175,2	174,6	170,2
	0	165,1	164,4	168,8	163,8	165,0	166,5	163,9
	+ 10	158,8	157,0	162,4	158,0	159,6	159,1	158,1
	20	153,0	149,9	156,2	152,6	152,7	152,4	152,7
	30	147,6	142,8	150,0	147,5	146,4	146,1	147,7
80	— 10	346,0	349,3	354,9	344,1	350,9	352,8	344,0
	0	332,5	332,8	340,9	331,1	334,7	336,4	331,3
	+ 10	319,8	317,8	327,9	319,0	319,5	321,4	319,6
	20	308,1	303,5	315,4	307,9	306,0	307,9	308,6
	30	297,9	289,1	302,9	296,6	287,7	295,2	298,4
85	— 10	643,9	657,6	665,9	645,3	649,8	660,1	643,5
	0	617,8	626,7	640,1	619,6	618,2	629,3	619,8
	+ 10	594,3	598,5	616,9	593,6	591,8	601,3	597,8
	20	572,5	571,4	593,4	573,3	566,7	576,0	577,4
	30	552,2	544,5	569,9	552,4	543,2	552,2	558,3
90	— 10	2192,2	2200,2	2179,3	2100,0	2134,3	2113,1	2061,0
	0	2106,3	2096,5	2090,2	1985,9	2016,5	2014,7	1985,2
	+ 10	2026,3	2002,1	2014,3	1884,8	1944,1	1925,0	1914,7
	20	1950,1	1911,7	1937,4	1784,5	1862,5	1843,8	1849,0
	30	1882,8	1821,1	1860,8	1696,3	1784,6	1767,8	1578,1

TWO METHODS of Determining the COEFFICIENTS of the EQUATIONS.

FIRST METHOD, by DR. MASKELYNE.

PROBLEM. *To find the Correction to be applied to the Maximum of any Equation.*

Method 1. Change the sign of the mean error of the Tables at the + maximum, and add it to the mean error of the Tables at the - maximum, regard being had to the signs of the quantities; and half the sum is the correction of the maximum of the Tables.

EXAMPLE. *To find the Correction of the Maximum of the first Lunar Equation, from the Observations in the Year 1751.*

Here, at the + maximum, the mean error of the Tables . . .	+ 29",75
at the - maximum, the mean error of the Tables . . .	- 13 ,25
	+ 16, 50
Sum	
Correction of the maximum = $\frac{1}{2}$ sum	+ 8, 25

Method 2. This is more general and exact, when the number of - and + equations are nearly equal. Take the sum of all the equations (both + and -), without any regard to the signs; take also the sum of all the - errors of the Tables at the + equations, and the sum of all + errors at the - equations: In like manner (without any regard to the signs), take the sum of all the + errors at the + equations, and the sum of all the - errors at the - equations: Take the difference of these two sums; then the correction of the maximum will be + or -, according as the first of the two last sums is greater or less than the other: Then say, As the sum of all the equations : the tabular maximum of the equation :: the difference of the two sums of the errors of the Tables found above : the correction of the maximum of the Tables.

EXAMPLE.

EXAMPLE. To find the Correction of the Maximum of the eighth Lunar Equation, from the Observations in 1752.

The sum of all the equations, both + and -, is 1480".

Sum of - err. at + equ. and + err. at - equ. is . . . = 920"

Sum of + err. at + equ. and - err. at - equ. is . . . = 234

Difference . . . = +686

Also, the tabular maximum is 28"; hence,

$$1480'' : 28'' :: +686'' : +13'',0;$$

therefore $28'' + 13'' = 41''$ is the maximum of the eighth equation from the observations of 1752.

In these rules, the error of the Tables signifies how much the Tables differ from observation; so that it will be + or -, according as the Tables give the longitude *more* or *less* than that observed.

DEMONSTRATION.

Let m = the tabular maximum of the equation, q = the tabular equation at any time when *affirmative*; e = the error of the Tables at the same time; x = the required correction of the maximum. Now, if you vary the maximum, you vary the equation at any time in the same proportion; hence, $m : q :: x : \frac{qx}{m}$ the variation of the equation corresponding to the variation x of the maximum; hence, $m + x$ is the true maximum, and $q + \frac{qx}{m}$ is the true equation. But the variation $\frac{qx}{m}$ of the equation (by augmenting the maximum m by x) must be equal and contrary to e (the error of the Tables), in order to destroy it; hence, $\frac{qx}{m} = -e$. In like manner, if q' represent the tabular equation at any time when it is *negative*, and e' the error of the Tables at that time, then $\frac{q'x}{m} = e'$. Add these equations together, and $\frac{x \times \overline{q + q'}}{m} = e' - e$. This equation is more accurate than either of the two equations

equations of which it is composed, because $e' - e$ is the same, whether the Moon's mean epoch in the Tables be right or not; also, whether any inequalities affect the Moon's place, which remain the same, whilst the equation in question changes from one maximum to the other. Hence,

$$x = \frac{\overline{e' - e} \times m}{q + q'} \text{ the correction of the maximum.}$$

But in order to arrive at a greater degree of accuracy, instead of e take the mean of a great number of e 's; and the same for e' , q , and q' ; and then we shall have $x = \frac{\text{mean of the } e'\text{'s} - \text{mean of the } e\text{'s}}{\text{mean of the } q\text{'s} + \text{mean of the } q'\text{'s}} \times m$. This will be true, whether the number of q 's be equal to the number of q 's, or not. But that an error in the epoch of the Moon's place, or any other inequalities which may affect the Moon's place, as above observed, may not affect the value of x , we must make the number of q 's and q 's equal. Now, if w = the number of q 's and q 's, and consequently of e 's and e 's, then, $\frac{\text{sum of the } e\text{'s}}{w} = \text{mean of the } e\text{'s}$; and the same for the rest. Hence, $x = \frac{\text{sum of the } e'\text{'s} - \text{sum of the } e\text{'s}}{\text{sum of the } q\text{'s} + \text{sum of the } q'\text{'s}} \times m$. And this must be nearly true, when the numbers of q 's and of q 's are nearly equal, the number of each being large.

Having thus obtained all the errors, correct the mean longitude by them, and let this correction be r ; also, let n be the number of *affirmative* equations, and n' the number of *negative*; then the correction, instead of being e and e' , will be $e + r$ and $e' + r$; and there being n of the former and n' of the latter, we get a more correct value of $x = \frac{\text{sum of the } e'\text{'s} + n'r - \text{sum of the } e\text{'s} - nr}{\text{sum of the } q\text{'s} + \text{sum of the } q'\text{'s}} \times m = \frac{\text{sum of the } e'\text{'s} - \text{sum of the } e\text{'s} + r \times \overline{n' - n}}{\text{sum of the } q\text{'s} + \text{sum of the } q'\text{'s}} \times m$.

If the number of q 's and q 's were equal, no correction of this kind would be wanted, as before observed; hence, the correction, on account of their not being equal, is $\frac{r \times \overline{n' - n}}{\text{sum of the } q\text{'s} + \text{sum of the } q'\text{'s}} \times m$.

If

If the equations be taken near the maximum, then each of the q 's and q 's will be nearly equal to m ; and sum of all the q 's + sum of all the q 's $= n' \times m + n \times m$ nearly; hence, the last correction of the maximum becomes $\frac{r \times \overline{n' - n}}{n' + n}$ nearly.

In the application of these rules, it is proposed that all the equations should be taken within 30° of the maximum of the equation which is to be corrected; and that they should be taken for a period, equal at least to that of half a revolution of the Moon's nodes. For when we want to correct the maximum of any particular equation, that equation must be involved with all the others; but if we take a great many equations at each maximum for the period above-mentioned, all the other equations will have run through all their positive and negative values, and therefore it is supposed that these may have destroyed each other, and thus leave the effect only of the particular equation which we are correcting. Upon this, the truth of the rule depends; and this supposition is found admissible.

The mean of all the sines of any arc Z intercepted between A and $A+Z$ is $\frac{r}{z} \times (\cos. A - \cos. \overline{A+Z})$. For $s = \frac{rc'}{z}$; and if z' be given, the sum of all the sines $= \frac{r}{z'} \times (\cos. A - \cos. \overline{A+Z})$. Let $z = n z'$, then $n = \frac{z'}{z}$; hence, the mean sine $= \frac{r}{z'} (\cos. A - \cos. \overline{A+Z}) \div \frac{z'}{z} = \frac{r}{z} (\cos. A - \cos. \overline{A+Z})$.

Hence, if all the equations be taken within a given distance D from the maximum, the true correction : that given by the rule :: mean sine : r :: arc D : sin. D . If $D = 30^\circ$, it is 1,0472 : 1. This would be accurately true, if the number of equations were distributed equally through every degree of the argument. But we doubt not, that the correction thus augmented, will be sufficiently near the truth; for this second correction itself will be but small, and the error but a small part of it. Thus, if the arc of distance of argument, from the maximum to which the equations are taken, be

be called A , and it's sine S , the second correction will be very nearly $= r' \times \frac{n' - n}{n' + n} \times \frac{A}{S}$. This is founded upon the principle, that the equations are pretty evenly disposed through the given distance. Dr. MASKELYNE furnished MASON with these rules, upon which he corrected the coefficients of the Lunar equations. MASON'S *Lunar Tables*, therefore, ought properly to be called MASKELYNE'S *Lunar Tables*.

SECOND METHOD.

This method is by the *Equations of Conditions*, and will be best explained by an Example.

EXAMPLE. *To find the Anomaly, greatest Equation, and Apogee of the Sun.*

1. Find three longitudes of the Sun by observation, and compare them with the computed longitudes, and let the errors of the Tables be C , C' , C'' .

These errors arise from all those which flow from the elliptical elements, and it is required to find, what belongs to each separately.

2. Let us first consider the *apogee*. Here we calculate the effect which is produced upon the longitude, by changing the apogee 1 minute. Now long. $\odot$ - long. apogee = anomaly; therefore 1' of change in the apogee produces 1' of change in the anomaly. Suppose then, for example, that the longitude which gives the error C , answers to 18° of anomaly, computed from the apogee; then, by the Table of the Equation of the Center, we find that at this point, $10'$ augmentation of the anomaly give $18'',8$ upon the equation of the center, and therefore 1' change of anomaly gives $1'',88$ upon that equation, and here the equation of the center is subtractive; hence, the longitude is diminished by this quantity.

3. Next, calculate the like effect from an assumed change of the equation of the center; and to facilitate this calculation, let us suppose the greatest

equation to be augmented by $18'',8$; and this, at 18° of anomaly, will give $5'',78$ diminution of longitude.

4. Let the true correction of the anomaly be $-x$ minutes;

_____ equation of the center be $y \times 18'',8$;

_____ epoch be z .

5. Then, as $1'$ change of anomaly produces $1'',88$ of longitude, x' of change will produce $x \times 1'',88$ change of longitude. The reason of this is shown in the note to Article 266.

6. For the same reason, $y \times 5'',78$ is the change of longitude for the change of the equation of the center.

7. Now as the Tables, if correct, must agree with the observations (supposed also to be correct), we have,

Longitude observed = longitude computed $- x \times 1'',88 - y \times 5'',78 + z$;

But longitude observed $-$ longitude computed $= C$; hence,

$$z - y \times 5'',78 - x \times 1'',88 = C.$$

This is called an *Equation of Condition*. Finding therefore three such equations, we obtain the values of x, y, z .

8. The mean of a great number of values thus determined, will give x, y, z , to great accuracy. The coefficients of x, y, z , should be as great as possible, in consequence of the errors to which the observations are liable. The mean of the values of x, y, z , give x, y, z , at the mean of the times, supposed to be not far distant. The mean motion is here supposed to be known; if not, for z put $a + nt$, t being the number of years from the fixed epoch, and n the correction of the annual motion.

To find the COEFFICIENTS of the LUNAR EQUATIONS.

9. Assume any given epoch, for example, 1750; and let n = the number of years from it, and find the place of the Moon. From the true observed longitude (L), subtract the sum (S) of all the inequalities (regard being had to their signs), and $L - S$ = mean longitude. Or, we may find this longitude
by

by the Tables; for if to the mean place (l) for the epoch 1750, you add the mean annual motion (m), you get $l + n m =$ mean longitude.

10. Let e be the correction to be made to the epoch for 1750, $-x$ the secular correction of the mean motion, c the number of centuries from 1750, E the argument of the new equation, and $-y$ it's coefficient. Then the mean longitude deduced from observation, will be $L - S - y \times \sin. E$, putting for E it's value at the given time. The mean longitude, according to the Tables, will be $l + e + n m - c x$, which must be made equal to the value found from observation; that is,

$$l + e + n m - c x = L - S - y \times \sin. E, \text{ or} \\ e - c x + y \times \sin. E = L - S - (l + n m).$$

But, by supposition, the difference between the observation and the Tables, or $L - S - (l + n m) = r$, is found from comparing the computed and observed places. Hence, the equation of condition is,

$$e - c x + y \times \sin. E = r.$$

Comparing therefore three observed with three computed places, and calling their differences r, r', r'' , we have

$$e - c x + y \times \sin. E = r$$

$$e - c' x + y \times \sin. E' = r'$$

$$e - c'' x + y \times \sin. E'' = r''.$$

From which equations we get the three unknown quantities e, x, y ; for c, c', c'' , and E, E', E'' , are known from the times being given; c, c', c'' being the number of ages from 1750, and E, E', E'' , the values of the arguments at the corresponding times.

In a similar manner we proceed in all other cases.

ON THE TABLES OF THE PLANETS.

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*On the Tables of MERCURY.*

The First Table contains the epochs of the mean longitude, of the aphelion, and node of Mercury, for the meridian of *Greenwich*, the mean longitude being reckoned from the mean equinox (Art. 239, 264, 278—282). Table II. contains the mean motion of longitude, of the aphelion, and node, for years. Table III. contains the same mean motions for days. Table IV. contains the same mean motions for hours, minutes, and seconds. Table V. contains the equation of the orbit of Mercury, for every degree of mean anomaly, with their differences, supposing the mean distance from the Sun to be 38710, and the excentricity 7955,4, the mean distance of the Earth being 100000 (Art. 217, and Chap. xiii). Table VI. contains the logarithms of the distances of Mercury from the Sun, with their differences, for every degree of mean anomaly. Table VII. contains the reduction of Mercury to the ecliptic, both in longitude and distance (Art. 268, 278). Table VIII. contains the heliocentric latitude, the Argument of latitude being, long. Mercury — long. node (Art. 268, 278.)

*To compute the Heliocentric Latitude and Longitude of Mercury, and the Logarithm of his Distance from the Sun.*

From Table I. of the epochs, take out the epochs of the mean longitude, of the aphelion and node, for the given year, and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before; under which, (Table II.) place the mean motion, in longitude, of the aphelion and node, answering to the number of years elapsed since the epoch to the given year.

Under



Under these, write down (Table III.) the mean motions of the same, for the given day of the month.

Under these, write down (Table IV.) the mean motions of the same, for the given hours, minutes, and seconds.

Add together the numbers in the several columns\*, rejecting 12 S, or any multiple thereof, if they occur; and you get the mean longitude, places of the aphelion and node, for the given time.

Subtract the longitude of the aphelion from the mean longitude, and the remainder is the mean anomaly.

With the mean anomaly, enter Table V., and take out the equation of the orbit, making proportion for the minutes and seconds, if there be any, correcting the result of the proportion, for second differences (Vol. II. Table XXXIX.)

Apply the equation, with it's proper sign, to the mean longitude, and you get the longitude on the orbit, from the mean equinox.

From the longitude of Mercury in his orbit, subtract the longitude of the node, and you get the argument, called the *Argument of Latitude*.

To the longitude on the orbit thus found, apply the reduction (Table VII.) with it's proper sign, and you have the longitude upon the ecliptic, reckoned from the mean equinox.

To the longitude thus found, apply the nutation, or equation of the equinoxes in longitude (Solar Table VIII.) with it's proper sign, and you get the true longitude of Mercury on the ecliptic, from the true equinox.

With the argument of latitude, enter Table VIII., and take out the heliocentric latitude, making proportion for the minutes and seconds, if necessary, correcting the result of the proportion for second differences (Vol. II. Table XXXIX.) and this is the true heliocentric latitude of Mercury.

With

\* Although the motions of the nodes of all the Planets are retrograde, yet the precession of the equinoxes is greater, so that the motion of the nodes in longitude is progressive, by the difference. See Art. 1079.



With the mean anomaly of Mercury, enter Table VI, and take out the logarithm of the distance, making proportion for the minutes and seconds, if necessary.

With the argument of latitude, enter Table VII., and in the column *Sub. Log.* take out the number, making proportion for minutes and seconds, if necessary; and subtracting it from the logarithm of the distance last found, you have the logarithm of the curtate distance.

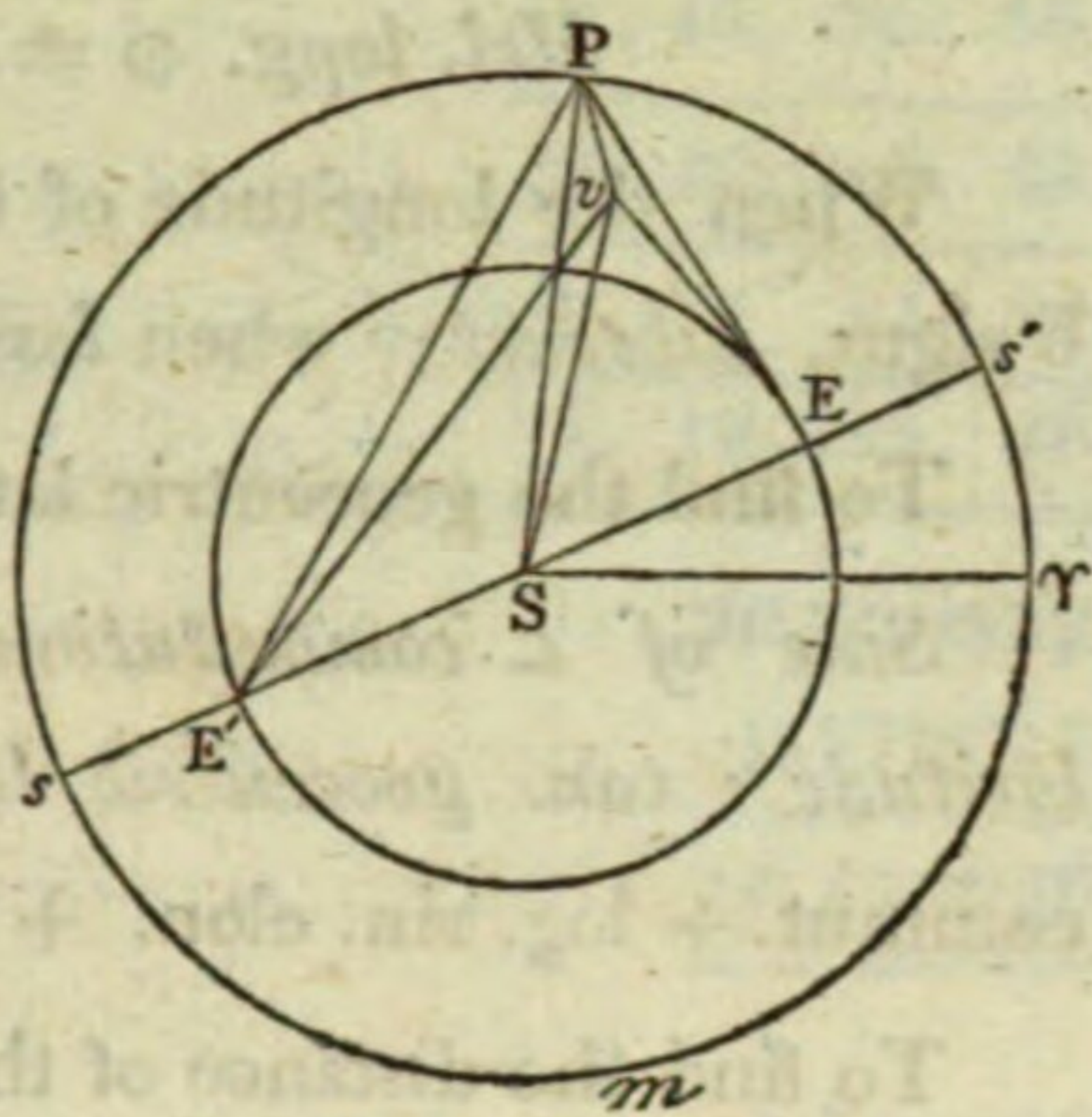
**EXAMPLE.** *What is the heliocentric Latitude and Longitude of Mercury on June 3, 1793, at 5<sup>h</sup>. 17'. 19", mean Time at Greenwich, and the Logarithm of his Distance from the Sun?*

|                                  | Longitude.                                                       | Aphelion.                                                         | Node.                                                             |
|----------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
| Epoch for 1793 . . . .           | <sup>s</sup> 2. <sup>o</sup> 28. <sup>i</sup> 5. <sup>u</sup> 16 | <sup>s</sup> 8. <sup>o</sup> 14. <sup>i</sup> 14. <sup>u</sup> 17 | <sup>s</sup> 1. <sup>o</sup> 15. <sup>i</sup> 51. <sup>u</sup> 45 |
| Mean Mot. to June 3 . .          | 9. 0. 13. 34                                                     | 24                                                                | 18                                                                |
| ————— for 5 <sup>h</sup> . . . . | 51. 9                                                            |                                                                   |                                                                   |
| ————— for 17' . . . .            | 2. 54                                                            |                                                                   |                                                                   |
| ————— for 19" . . . .            | 3                                                                |                                                                   |                                                                   |
| Mean Long. . . . .               | 11. 29. 12. 56                                                   | 8. 14. 14. 41                                                     | 1. 15. 52. 3                                                      |
| Equation Table V. . . .          | — 23. 39. 59                                                     | 11. 29. 12. 56                                                    | 11. 5. 32. 57                                                     |
| Long. on Orbit . . . .           | 11. 5. 32. 57                                                    | 3. 14. 58. 15                                                     | 9. 19. 40. 54                                                     |
| Reduct. Table VII. . . .         | + 8. 10                                                          | Mean Anom.                                                        | Arg. of Lat.                                                      |
| Long. from mean Equin.           | 11. 5. 41. 7                                                     | Hence, Tab. VI.                                                   | Hence, Tab. VIII.                                                 |
| Nutation . . . . .               | — 6                                                              | Log. dist. 9,582789                                               | Hel. lat. 6°. 35'. 21". S.                                        |
| True Long. on Ecl. . . .         | 11. 5. 41. 1                                                     | Reduct. . 2878                                                    |                                                                   |
|                                  |                                                                  | 9,579911                                                          |                                                                   |
|                                  |                                                                  | Log. of curtate<br>distance from the<br>Sun.                      |                                                                   |

**PROBLEM.**



Let  $S$  be the Sun,  $E$  or  $E'$  the Earth,  $E'SE$  a diameter, which produce to  $s'$ ,  $s$ ,  $P$  the planet,  $\gamma$  the first point of Aries,  $\gamma P$  the order of the signs; draw  $Pv$  perpendicular to the ecliptic, and join  $EP$ ,  $Ev$ ,  $E'P$ ,  $E'v$ ,  $SP$ ,  $Sv$ . Let the Earth be at  $E$ , and Sun at  $s$ ; then, the angle  $\gamma Sv \sim \gamma SE = ESv$  the angle of commutation. And if the Earth be at  $E'$ ,  $\gamma Sv \sim \gamma SE' = E'Sv$ , reckoning according to the order of the signs. That is,



Find  $SP$  from the Tables, then,  $\text{rad.} : \cos. PSv$  (hel. lat. planet)  
 $\therefore PS : Sv$ , and  $\log. Sv = \log. PS + \log. \cos. PSv - 10$ .

*Log. tan. d° = 10, + log. Sv - log. SE, or = 10, + log. SE - log. Sv, according as it is a superior or an inferior planet.*

$$\text{Log. tan. } \frac{1}{2} (SEv - SvE) = \text{log. tan. } (d^{\circ} - 45^{\circ}) + \text{log. tan. } \frac{1}{2} (SEv + SvE) - 10.$$

The



The geocentric longitude differs from the heliocentric longitude by the elongation  $SEv$  or  $SE'v$ ; the geocentric longitude being *less* than the heliocentric in the *former* case, and *greater* in the *latter*, that is, according as the Sun or the Planet is more easterly; or,

$$\text{Hel. long. } \odot \pm \angle \text{Elong.} = \text{geo. long. planet.}$$

When the longitude of the planet – longitude of the Sun is *greater* than 6 signs, *subtract*; when *less*, *add*.

To find the geocentric latitude, we have,

*Sine of  $\angle$  commutation : sine of  $\angle$  elongation :: tan. heliocentric latitude : tan. geocentric latitude* (Art. 278); and, arith. comp. log. sin. commut. + log. sin. elon. + log. tan. hel. lat. – 10, = log. tan. geo. lat.,

To find the distance of the Planet from the Earth, we have,

$$\text{Sin. } SEv : \text{sin. } ESv :: Sv : Ev$$

$$\text{Cos. } PEv : \text{rad.} :: Ev : EP$$

---


$$\therefore \text{sin. } SEv \times \text{cos. } PEv : \text{sin. } ESv \times \text{rad.} :: Sv : EP; \text{ and,}$$

$$EP = \frac{Sv \times \text{sin. } ESv \times \text{rad.}}{\text{sin. } SEv \times \text{cos. } PEv}.$$

Hence,  $\log. EP = \log. Sv + \log. \text{sin. } ESv + \text{arith. comp. log. sin. } SEv + \text{arith. comp. log. cos. } PEv - 10$ , or  $-20$ , according as the planet is superior or inferior; because for an inferior,  $\log. Sv$  has it's index increased by 10, and therefore 10 more must be deducted from the index on that account.

In calculating the geocentric place of a planet,  $20''$  is added to the longitude of the Sun, on account of it's aberration (Art. 531.)

In all calculations where the Sun's distance from the Earth enters, it's log. is increased by 10, when the Earth is at less than it's mean distance from the Sun; this therefore must be considered in the operation.

EXAMPLE



EXAMPLE. *What is the geocentric Latitude and Longitude of Mercury, and the Logarithm of his Distance from the Earth, on June 3, 1793, at 5<sup>h</sup>. 17'. 19" mean Time at Greenwich?*

|                                                           |               |
|-----------------------------------------------------------|---------------|
| True long. of Mercury on ecliptic . . . . .               | 11. 5. 41. 1  |
| True long. of Earth * . . . . .                           | 8. 13. 32. 33 |
| Commutation . . . . .                                     | 2. 22. 8. 28  |
| Sup. of commutation ( <i>SEv</i> + <i>SvE</i> ) . . . . . | 3. 7. 51. 32  |
| Half sup. . . . .                                         | 1. 18. 55. 46 |
| Logarithm of distance of the Sun + 10, . . . . .          | 20,000537     |
| Log. of curt. dist. Mercury from Sun . . . . .            | 9,579911      |
| Log. tan. 69. 12. 40 . . . . .                            | 10,420626     |
| 45                                                        |               |
| Log. tan. 24. 12. 40 . . . . .                            | 9,652875      |
| Log. tan. 48. 55. 46 . . . . .                            | 10,059757     |
| Log. tan. 27. 17. 34 . . . . .                            | 9,712632      |
| 21. 38. 12 elongation of Mercury.                         |               |
| 73. 32. 33 long. Sun + 20"                                |               |
| 51. 54. 21 geocentric longitude of Mercury.               |               |
| Log. sin. 82. 8. 28 . . . . . arith. comp.                | 0,004098      |
| Log. sine 21. 38. 12 . . . . .                            | 9,566696      |
| Log. tan. 6. 35. 21 . . . . .                             | 9,062628      |
| Log. tan. 2. 27. 41 geocentric latitude S. . . . .        | 8,633422      |
| Log. sin. 82. 8. 28 . . . . .                             | 9,995902      |
| Log. curt. dist. <i>Sv</i> . . . . .                      | 9,579911      |
| Log. sin. 21. 38. 12 . . . . . arith. comp.               | 0,433304      |
| Log. cos. 2. 27. 41 . . . . . arith. comp.                | 0,000401      |
| Log. <i>EP</i> = 1,02216 . . . . .                        | 0,009518      |

\* The longitude of the Sun, computed for the examples here given of the planets, was computed from the Tables given by M. DE LA LANDE in the last edition of his Astronomy; the new Solar Tables here given, not having been published when the examples were computed.



*On the Tables of VENUS.*

The Tables of Venus are in every respect similar to the Tables of Mercury, Tables V. and VI. excepted, which contain, in addition, a secular variation. Table I. contains the epochs of the mean longitude, of the aphelion and node. Table II. contains the mean motions of the same, for years. Table III. contains their mean motions for days. Table IV. contains their mean motions for hours, minutes, and seconds. Table V. contains the equation of the orbit for the year 1780; but this equation diminishes  $25''$  in 100 years. Table VI. contains the logarithm of the distance of Venus from the Sun, for the year 1780, with the corrections for 100 years, owing to a change of the excentricity. Table VII. contains the heliocentric latitude of Venus, the reduction in longitude to the ecliptic, and the reduction of the logarithm of the distance, in order to get the curtate distance from the Sun.

The greatest equation (Table V.) of the orbit is  $47'. 20''$ , and this diminishes at the rate of  $25''$  in 100 years; that is, the diminution for every minute of the equation is very nearly  $0'',5$ ; we shall therefore take the secular diminution at the rate of  $0'',5$  for every minute of the equation; thus, if the equation be  $16'$ , the diminution is  $4''$  for 100 years; and for any other number of years, the diminution is in proportion. For any time *before* 1780, this correction must be added to the equation.

In Table VI. there is a small Table for the correction of the logarithms of the distance of Venus from the Sun, for 100 years; entering it with the mean anomaly of Venus, and applying the correction according to the sign, for any time *after* 1780; but with a contrary sign, *before* 1780.

These corrections being made from Tables V, and VI. for the secular variation, the use of the Tables are in every respect the same as those for Mercury.



*To find the heliocentric Latitude and Longitude of Venus, and the Logarithm of her Distance from the Sun.*

From Table I. take out the epochs of the mean longitude, the aphelion and node, for the given year; and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before; under which (Table II.) place the mean motion in longitude, of the aphelion and node, answering to the number of years elapsed since the epoch, to the given year.

Under these, write down (Table III.) the mean motions of the same, for the given day of the month.

Under these, write down (Table IV.) the mean motions of the same, for the given hours, minutes, and seconds,

Add together the numbers in the several columns, rejecting 12 S, or any multiple thereof, if they occur, and you get the mean longitude, places of the aphelion and node, for the given time.

Subtract the longitude of the aphelion from the mean longitude, and the remainder is the mean anomaly.

With the mean anomaly enter Table V. and take out the equation of the orbit with it's proper sign, making proportion for the minutes and seconds, if there be any. But this requires a correction, at the rate of 0",5 for every minute of the equation for 100 years; and for any other time, the correction will be in proportion; to be subtracted *after* 1780, and added *before* that time.

Apply the equation with it's proper sign, to the mean longitude, and you get the longitude on the orbit, from the mean equinox.

From the longitude of Venus in her orbit, subtract the longitude of the node; and you have the Argument, called the *Argument of Latitude*.

To the longitude on the orbit, apply the reduction (Table VII.) with it's proper sign, and you have the longitude upon the ecliptic, from the mean equinox.

To



To the longitude thus found, apply the nutation (Solar Table VIII.) with it's proper sign, and you get the true longitude of Venus on the ecliptic, from the true equinox.

With the argument of latitude enter Table VII. and take out the latitude, making proportion for the minutes and seconds, if necessary, and this is the true heliocentric latitude of Venus.

With the mean anomaly of Venus enter Table VI. and take out the logarithm of her distance from the Sun, making proportion for the minutes and seconds, if necessary. But this must be corrected by the small Table, to be entered with the mean anomaly, and you get the correction for 100 years; and for any other time, the correction will be in proportion, to be applied with a contrary sign, *before* 1780.

With the argument of latitude, enter Table VII. and take out the reduction in the Column under *Sub. Log.* making proportion for the minutes and seconds, if necessary; and subtract it from the logarithm of the distance last found, and you have the logarithm of the curtate distance.

EXAMPLE. *On June 23, 1690, New Stile, at 1<sup>h</sup>. 18'. 11" mean Time at Greenwich; to find the heliocentric Latitude and Longitude of Venus, and the Logarithm of her Distance from the Sun.*

|                        | Longitude.    | Aphelion.                 | Node.                  |
|------------------------|---------------|---------------------------|------------------------|
| Epoch for 1660 . . .   | 3. 19. 55. 52 | 10. 5. 54. 12             | 2. 13. 8. 48           |
| Mot. for 80 years . .  | 0. 15. 22. 24 | 1. 4. 48                  | 41. 20                 |
| — 10 years . .         | 3. 1. 7. 14   | 8. 6                      | 5. 10                  |
| June 23 . . .          | 9. 8. 46. 38  | 23                        | 15                     |
| 1 hour . . .           | 4. 0          |                           |                        |
| 18' . . .              | 1. 12         |                           |                        |
| 11" . . .              | 1             |                           |                        |
| Mean Long. . . .       | 4. 15. 17. 21 | 10. 7. 7. 29              | 2. 13. 55. 33          |
| Equation . . . .       | + 6. 50       | 4. 15. 17. 21             | 4. 15. 24. 11          |
| Long. on orbit . .     | 4. 15. 24. 11 | 6. 8. 9. 52               | 2. 1. 28. 38           |
| Reduction . . . .      | — 2. 32       | Mean Anomaly.             | Arg. of Latitude.      |
| Long. from mean equ.   | 4. 15. 21. 39 | Log. dist. . . 9,856347   | Hel. Lat. 2°. 58'. 51" |
| Nutation . . . .       | + 2           | Reduction . . . — 588     |                        |
| True long. on ecl. . . | 4. 15. 21. 41 | Log. curt. dist. 9,855759 |                        |

On



*On the Tables of MARS.*

The First Table contains the epochs of the mean longitude, of the aphelion and node of Mars; together with the arguments of the equations, expressed by dividing the circle into 1000 equal parts. Table II. contains the mean motions of the same, for years. Table III. contains the mean motions for months; that is, for the beginning of each month, reckoned from the beginning of the year. Table IV. contains the mean motions for days\*. Table V. contains the mean motions for hours. Table VI. contains the mean motions for minutes and seconds. Table VII. contains the equation of the center of Mars, for January 1, 1800, with the secular variation, to be applied to the longitude. Table VIII. contains the equation of the orbit corresponding to Argument II. Table IX. contains the equation answering to Argument III. Table X. contains the equation answering to Argument IV. Table XI. contains the equation answering to Argument V. Table XII. contains the equation answering to Argument VI. Table XIII. contains the equation answering to Argument VII. Table XIV. contains the equation answering to Argument VIII. Table XV. contains the equation answering to Argument IX. Table XVI. contains the logarithms of the radius vector of the orbit of Mars, for January 1, 1800, with the secular variation. Table XVII. contains the equation of the radius vector, answering to Argument II. Table XVIII. contains the equation answering to Argument III. Table XIX. contains the equation answering to Argument IV. Table XX. contains the equation answering to Argument V. Table XXI. contains the equation answering to Argument VI. Table XXII. contains the

\* Tables III, and IV. in this and the following Planets, answer to Table III. in the Tables of Mercury and Venus; for if we take out the motion for the month in Table III, and for the day of the month in Table IV, and add them together, we get the motion for the day of the month: whereas, in Table III. of Mercury and Venus, we take out the motion for the day of the month, at once entering that Table.



the equation answering to Argument VII. Table XXIII. contains the equation answering to Argument VIII. Table XXIV. contains the equation of the radius vector, in parts of it's logarithm. Table XXV. contains the heliocentric latitude of Mars. Table XXVI. contains the reduction to the ecliptic, both in longitude and for the radius vector.

Each equation of the orbit, answering to Arguments II...IX. consists partly of positive and partly of negative quantities, on which account, we should have both to add and to subtract in collecting the sum of all the equations; it will therefore render the calculation easier, if we add to each equation it's maximum value, by which, every part of the equation becomes positive, the equation decreasing to 0 and no lower. For instance, let the annexed Table represent the Argument for every 100<sup>th</sup> part of the circle, and the corresponding equations; then -4 being the maximum negative value, if we increase the whole by +4, the equation increased becomes all positive, as in the third column.

| <i>Arg.</i> | <i>Equat.</i> | <i>Equ. inc.</i> |
|-------------|---------------|------------------|
| 0           | + 0"          | + 4"             |
| 100         | + 2           | + 6              |
| 200         | + 4           | + 8              |
| 300         | + 4           | + 8              |
| 400         | + 2           | + 6              |
| 500         | 0             | + 4              |
| 600         | - 2           | + 2              |
| 700         | - 4           | 0                |
| 800         | - 4           | 0                |
| 900         | - 2           | + 2              |
| 1000        | 0             | + 4              |

If therefore we use the third column instead of the second, the equation will be too great by 4; in this case, therefore, we must subtract 4 in order to get the true value. By taking out therefore each equation thus increased, and adding them together, we get a sum greater than the sum of the true equations, by the sum of all the maxima values, which is a constant quantity; this constant quantity, therefore, subtracted from the sum of the equations increased as above stated, leaves the true sum of the equations. If we increase the true equation by a quantity greater than the maximum value, the equation so increased will not descend to 0; and here we subtract the sum of all the quantities added, instead of the sum of the maxima values. This is the case in the Tables of Mars and the Georgian, which never descend to 0. For Jupiter and Saturn, the equations are increased by the  
maxima



maxima values, as appears by their descending to 0. For Mars, the sum of the quantities added to make the equations all positive, is 2'. The Arguments of the first four Tables are formed upon the same principle as those of the Sun; and the disturbing forces here considered, are those which arise from Jupiter, Venus, and the Earth; and therefore they depend on the relative situations of Mars and these planets, except one equation, which depends only on the situation of Jupiter. For instance, Argument II. is formed from the longitude of Mars *minus* the longitude of Jupiter, and is therefore adapted to the situations of Mars and Jupiter at the beginning of each respective year. And in like manner, the other Arguments are formed from the relative situations of the planets, or situation of the planet, on which the Arguments depend, at the beginning of the year. In Table II. you have the mean motions of the Arguments for the respective years, corresponding to the variations of the relative situations of the planets which form the Arguments, rejecting whole circles when they enter. In Table III. you have the mean motions of the Arguments for months. In Table IV. you have the mean motions of the Arguments for days. In Table V. you have the mean motions of the Arguments for hours. For minutes and seconds the motions are too small to render any attention to them necessary. Exactly in the same manner, the Arguments for Jupiter, Saturn, and the Georgian are formed; only here, there are no Arguments for hours, on account of their extreme smallness. If therefore you take the Arguments for the beginning of the year, and add to them the mean motions of the Arguments from the beginning of the year up to the given time, you have the Arguments at that time; and these Arguments entered in their respective Tables, give the equations for the given time. The method of computing the equations arising from the disturbing force, is fully explained in Chap. 37. The same forces which disturb the motion of a planet in it's orbit, must also necessarily disturb the radius vector; that is, increase or decrease it's length: the same Arguments therefore which serve to find the equations of the orbit, serve also to



to find the equations of the radius vector, which are therefore contained in another set of Tables.

*To compute the heliocentric Latitude and Longitude of Mars, and the Logarithm of his Distance from the Sun.*

From Table I. of the epochs, take out the epochs of the mean longitude, of the aphelion and node, with the Arguments II, III, IV, V, VI, VII, VIII, IX, and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before; under which, from Table II, place the mean motion in longitude, of the aphelion and node, with the Arguments, answering to the number of years elapsed since the epoch to the given year.

Under these, write down (Table III.) the mean motions of the same, for the given month.

Under these, write down (Table IV.) the mean motions of the same, for the given day of the month.

Under these, write down (Table V.) the mean motions of the same, for the given hours.

Under these, write down (Table VI.) the mean motions of the same, for minutes and seconds.

Add together the numbers in the several columns, rejecting 12 *S*, or any multiple thereof, if they occur; and in the arguments rejecting 1000, or any multiples thereof; and you get for the given time, the mean longitude, the aphelion and node, and the arguments.

From the mean longitude subtract the longitude of the aphelion, and you get the mean anomaly; with which, making proportion for the minutes and seconds, enter Table VII. and take out the equation, together with the secular variation, with their proper signs; except the time be *before* 1800, in which case, the secular variation is to be taken out with a contrary sign; then say, 100 : the years from 1800 to the given time :: secular variation

above



above found : the secular variation required. With Argument II. take out the equation in Table VIII. With Argument III. take out the equation in Table IX. With Argument IV. take out the equation in Table X. With Argument V. take out the equation in Table XI. With Argument VI. take out the equation in Table XII. With Argument VII. take out the equation in Table XIII. With Argument VIII. take out the equation in Table XIV. With Argument IX. take out the equation in Table XV. Take the sum of all these equations (regard being had to the signs of the first equation and of the secular variation, the signs of the other being all positive) and from it take  $2'$  (being the sum of the quantities added to make the Equations II...IX. all positive), and the result applied, with it's proper sign, to the mean longitude already found, gives the longitude of Mars in his orbit.

From the longitude of Mars in his orbit, subtract the longitude of his node, and you have the Argument of latitude ; with which, making proportion for the minutes and seconds, enter Table XXVI, and from the Second, Fifth, or Eighth Columns, take out the reduction of the longitude to the ecliptic, with it's proper sign, and apply it to the longitude upon the orbit, and you have the true *heliocentric longitude* upon the ecliptic from the *mean* equinox.

With the same Argument enter Table XXV.; and, making proportion for the minutes and seconds, you get the true *heliocentric latitude*.

With the mean anomaly of Mars, enter Table XVI. and take out the logarithm of the distance, and correct it by the following Tables, and you get the true logarithm of the distance of Mars from the Sun.



EXAMPLE. To find the heliocentric Latitude and Longitude of Mars, on Nov. 13, 1800, at 11<sup>h</sup>. 8'. 20" mean Time at Greenwich.

|                       | Longitude.                                           | Aphelion.                                            | Node.                                                | Arguments.                     |      |     |     |     |      |       |     |                                                                                                          |  |
|-----------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------|------|-----|-----|-----|------|-------|-----|----------------------------------------------------------------------------------------------------------|--|
|                       | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>''</sup> | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>''</sup> | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>''</sup> | II.                            | III. | IV. | V.  | VI. | VII. | VIII. | IX. |                                                                                                          |  |
| Epoch for 1800        | 7. 22. 34. 21,8                                      | 5. 2. 13. 17                                         | 1. 18. 1. 1                                          | 420                            | 197  | 617 | 223 | 632 | 013  | 619   | 286 |                                                                                                          |  |
| November . . .        | 5. 9. 19. 3,4                                        | 55,8                                                 | 22,8                                                 | 372                            | 302  | 674 | 70  | 389 | 53   | 337   | 26  |                                                                                                          |  |
| 13 <sup>d</sup> . . . | 6. 48. 46,5                                          | 2,4                                                  | 1,0                                                  | 016                            | 13   | 29  | 3   | 17  | 2    | 14    | 1   |                                                                                                          |  |
| 11 <sup>h</sup> . . . | 14. 24,7                                             |                                                      |                                                      | 1                              |      | 1   |     | 1   |      |       |     |                                                                                                          |  |
| 8' . . .              | 10,5                                                 |                                                      |                                                      |                                |      |     |     |     |      |       |     |                                                                                                          |  |
| 20'' . . .            | ,4                                                   |                                                      |                                                      | 809                            | 512  | 321 | 296 | 39  | 68   | 970   | 313 |                                                                                                          |  |
| Mean Long. . .        | 1. 8. 56. 47,3                                       | 5. 2. 24. 15,2                                       | 1. 18. 1. 24,8                                       | Arg. mean anom. + 10. 13. 13,3 |      |     |     |     |      |       |     | With the Argument of latitude enter Tab. XXV. and the heliocentric latitude is found to be 2'. 13'',4 N. |  |
| Sum of Equat. .       | + 10. 13. 26,9                                       | 1. 8. 56. 47,3                                       | 1. 19. 10. 14,9                                      | Sec. equat. + 3                |      |     |     |     |      |       |     |                                                                                                          |  |
| Long. on Orbit        | 1. 19. 10. 14,2                                      | 8. 6. 32. 32,1                                       | 0. 1. 8. 50,1                                        | Arg. II . . . . . 49,2         |      |     |     |     |      |       |     |                                                                                                          |  |
| Red. to Ecl. . .      | - 2,2                                                | Mean Anom.                                           | Arg. Latitude.                                       | III . . . . . 40,2             |      |     |     |     |      |       |     |                                                                                                          |  |
| Helio. Long. .        | 1. 19. 10. 12,0                                      |                                                      |                                                      | IV . . . . . 5,6               |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | V . . . . . 3,6                |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | VI . . . . . 11,3              |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | VII . . . . . 2,4              |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | VIII . . . . . 5,7             |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | IX . . . . . 15,3              |      |     |     |     |      |       |     |                                                                                                          |  |
|                       |                                                      |                                                      |                                                      | Sum - 2' . . . 10. 13. 26,9    |      |     |     |     |      |       |     |                                                                                                          |  |

In this operation, the first six lines are taken immediately from the Tables, the sums of which give the mean longitude, aphelion and node, with the arguments, for the given time. From the mean longitude subtract the place of the aphelion, and you get 8°. 6°. 32'. 32",1 the mean anomaly; with this, enter Table VII. in the following manner. The equation corresponding to 8°. 6°. 30' is + 10°. 13'. 4",9; and the variation for 10' is 34"; hence, 10' : 2'. 32" :: 34" : 8",6, which (as the equation increases) added to + 10°. 13'. 4",9 gives + 10°. 13'. 13",5 the equation for 1800. But the secular equation is + 36",8 (the time being *after* 1800), and the time from the beginning of 1800 to the given time, November 13, is 0,87 of a year (Solar Table IV); hence, 100 : 0,87 :: + 36",8 : + 0",3. With Argument II, 809, enter Table VIII, and take out the equation thus: The equation corresponding to 800 is 51", and the difference for 10 is 2"; hence,



hence,  $10 : 9 :: 2'' : 1'',8$  which (as the equation is decreasing) subtracted from  $51''$ , leaves  $49'',2$  the equation required. In the same manner, the other equations are found; and the sum of the whole, diminished by  $2'$ , is  $+ 10^\circ. 13'. 26'',9$ , which is the effect of all the equations; and this applied to  $1^\circ. 8'. 56'. 47'',3$  gives  $1^\circ. 19'. 10'. 14'',2$  the longitude of Mars in his orbit. From this subtract the place of the node, and the difference  $1^\circ. 8'. 50'',1$  is the argument of latitude, with which enter Table XXVI. and take out the reduction thus: The reduction for  $1^\circ$  is  $- 1'',9$ , and the increase for  $60'$  is  $1,9$ ; hence,  $60' : 8'. 50'' :: 1'',9 : 0'',3$ , which (as the reduction is increasing) added to  $- 1'',9$  gives  $- 2'',2$  the reduction required; and this applied to the longitude in the orbit, gives  $1^\circ. 19'. 10'. 12''$  the true heliocentric longitude of Mars on the ecliptic, from the *mean* equinox. Should the longitude from the *true* equinox be required, you must apply the equation of the equinoxes in longitude from Table VIII. of the Sun. With the argument of latitude  $1^\circ. 8'. 50''$  enter Table XXV. and find the latitude thus: For the argument  $1^\circ$  the latitude is  $1'. 56'',3$ , and the variation is  $116'',3$  for  $1^\circ$ ; hence,  $1^\circ : 8'. 50'' :: 116'',3 : 17'',1$ , which (as the latitude is increasing) added to  $1'. 56'',3$  gives  $2'. 13'',4$  N. the *heliocentric latitude*.

#### *On the Tables of JUPITER.*

The First Table contains the epochs of the mean longitude, of the aphelion and node of Jupiter; together with the Arguments of the equations, expressed by dividing the circle into 10000 equal parts for Arguments II, III, IV, V.; and into 1000 equal parts for Arguments VI, VII, VIII, IX. Table II. contains the mean motions of the same, for years. Table III. contains the mean motions for months; that is, for the beginning of each month reckoned from the beginning of the year. Table IV. contains the mean motions for days. Table V. contains the mean motions for hours and minutes. Table VI. contains the great equation of Jupiter for every 10 years.



10 years. Table VII. contains the equation of Jupiter's orbit for the year 1750, with the secular variation. Table VIII. contains the equation of the orbit corresponding to Argument II. Table IX. contains the equation answering to Argument III. Table X. contains the equation answering to Argument IV. Table XI. contains the equation answering to Argument V. Table XII. contains the equation answering to Argument VI. Table XIII. contains the equation answering to Argument VII. Table XIV. contains the equation answering to Argument VIII. Table XV. contains the equation answering to Argument IX. Table XVI. contains an equation answering to Argument VII - Argument VIII. Table XVII. contains an equation answering to Argument VI + Argument VIII. Table XVIII. contains the radius vector of the orbit of Jupiter for 1750, with the secular variation; the mean distance of the Earth from the Sun being unity. Table XIX. contains the equation of the radius vector answering to Argument II. Table XX. contains the equation answering to Argument IV. Table XXI. contains the equation answering to Argument V. Table XXII. contains the heliocentric latitude of Jupiter for the year 1750, with the secular variation. Table XXIII. contains the reduction to the ecliptic; with the log. cosine of the heliocentric latitude.

All the above-mentioned equations of the motion of Jupiter, the equation of the orbit excepted, arise from the attraction of Saturn, and depend upon the relative situations of Jupiter and Saturn. The method of computing the disturbing force of one planet upon another, is explained in Chap. 37. The theory of these equations was given by M. DE LA PLACE in the *Memoirs* for 1786, from the theory of gravity; and they were computed by M. DE LAMBRE.

Let  $a$  express the number of years from 1750,  $S$  the mean longitude of Saturn,  $I$  the mean longitude of Jupiter; then the great equation of Jupiter is,

$$(20'. 49'', 5 - a \times 0'', 042733) \times \sin. (5 S - 2 I + 5^\circ. 34'. 8'' - a \times 58'', 88).$$

The



The great equation of Saturn arising from the attraction of Jupiter, is also found to be (*Mem.* 1785),

$$-(48'. 44'' - a \times 0'',1) \times \sin. (5S - 2I + 5^\circ. 34'. 8'' - a \times 58'',88).$$

The period of these two equations is 918,76 years. By way of distinction, these are called the *great* equations of Jupiter and Saturn: These two equations of Jupiter and Saturn are very nearly in the ratio of 3 to 7. Now it is manifest, that when  $5S - 2I - a \times 58'',88 = 360^\circ$ , the equation must then begin again, and therefore this will determine the period; now  $5S - 2I - a \times 58'',88$  increases  $1410'',6$  in a common year; therefore  $\frac{360^\circ = 1296000''}{1410,6} = 918,76$  years, the period in which these equations return again the same.

These equations show the reason, why the present mean motions of Jupiter and Saturn differ from the true mean motions, as the latter cannot be determined but by taking in the above period. We have the apparent mean motion of Saturn, in a common year, by adding to it's mean annual motion, the quantity by which the great equation varies in that time, and this quantity is very nearly  $= -(48'. 44'' - a \times 0'',1) \times \sin. 23'. 31'' \times \cos. (5S - 2I + 5^\circ. 34'. 8'' - a \times 58'',88)$ ; and the apparent mean motion of Jupiter is this quantity with a contrary sign, diminished in the ratio of 7 to 3, and added to his mean annual motion.

Now the fluxion of the cosine of any quantity  $= \text{sine} \times \text{flux. arc}$ , therefore when  $\cos. =$  a maximum,  $\text{sine} \times \text{flux. arc} = 0$ , or the sine of the arc  $= 0$ , or the arc  $= 0$ ; therefore when the above quantity  $=$  a maximum,  $5S - 2I + 5^\circ. 34'. 8'' - a \times 58'',88 = 0$ , which happened in the year 1560. At that time, the apparent annual motion of Saturn was less than the true, by  $20'',1$ , and that of Jupiter greater by  $8'',6$ ; since that time, their apparent mean motions have been approaching to their true mean motions, and in 1789 their apparent and true mean motions were equal. These results show, why, in comparing the modern with the ancient observations, the mean motion of Saturn appears to be retarded, and that of Jupiter accelerated; and that



that from a comparison of the modern observations, the mean motion of Saturn appears to be accelerated, and that of Jupiter to be retarded.

Now if  $H$  be the heliocentric mean longitude of Jupiter,  $h$  that of Saturn, corrected by the above equations respectively, computed from the equinox of the year 1750; the other equations of the motion of Jupiter from the action of Saturn, are,

$$\begin{aligned}
 & - 1'. 22'', 7 \sin. (H - h) + 3'. 24'', 3 \sin. 2(H - h) + 17'' \sin. 3(H - h) + 3'', 9 \sin. 4(H - h) \\
 & + 2'. 18'', 4 \sin. (H - 2h - 13^\circ. 33'. 7'' + a \times 13'', 7) \\
 & + 1. 27, 4 \sin. (2H - 3h - 61. 59. 48 + a \times 21, 9) \\
 & + 2. 47, 0 \sin. (3H - 5h + 55. 19. 21 + a \times 43, 0) \\
 & - 16, 0 \sin. (3H - 4h - 62. 51. 19) \\
 & + 12, 8 \sin. (3H - 2h - 8. 30. 15) \\
 & - 13, 0 \sin. (3h - H - 58. 31. 0) \\
 & + 11, 6 \sin. (h + 45^\circ. 4') \\
 & + 10, 0 \sin. (4H - 5h + 45^\circ. 16'. 32'') \\
 & - 5, 4 \sin. (2H - h + 16. 1. 27)
 \end{aligned}$$

Now the sum of the maxima of all these equations, is  $11'. 56'', 3$ ; and in the Tables computed from these equations, each equation is increased by it's maximum, in order to render all the equations additive, as in the equations of Mars; this quantity therefore must always be subtracted from the sum of the equations taken from the Tables.

*To find the heliocentric Latitude and Longitude of Jupiter.*

From Table I. of the epochs, take out the epochs of the mean longitude, of the aphelion and node, with the Arguments II, III, IV, V, VI, VII, VIII, IX. and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before; under which, from Table II, place the mean motion in longitude, of the aphelion and node, with the Arguments, answering to the number of years elapsed since the epoch to the given year.

Under



Under these, write down (Table III.) the mean motions of the same, for the given month.

Under these, write down (Table IV.) the mean motions of the same, for the given day of the month.

Under these, write down (Table V.) the mean motions of the same, for the given hours and minutes \*.

Under these, write down the great inequality (Table VI.) in the First Column, with the corresponding arguments.

Add together the numbers in the several columns, rejecting 12 *S*, or any multiple thereof, if they occur; and in the arguments, rejecting 10000 for Arguments II, III, IV, V, and 1000 for Arguments VI, VII, VIII, IX, or any multiples thereof, and you get, for the given time, the mean longitude corrected for the great equation, the aphelion, the node, and the arguments corrected for the great equation.

From the longitude corrected for the great equation, as already found, subtract the longitude of the aphelion, and you have Arg. I. Arg. VII - Arg. VIII. gives Arg. X; Arg. VI + Arg. VIII. gives Arg. XI.

With Argument I. making proportion for the minutes and seconds, take out the equation of Jupiter's orbit in Table VII, together with the secular variation, with their proper signs, except the time be *before* 1750, in which case, the secular variation is to be taken out with a contrary sign; then say, 100 : the years from 1750 to the given time :: the secular variation above found : the secular variation required. With Argument II. take out the equation in Table VIII, making proportion in this, and in the following equations, for the intermediate numbers of the Arguments. With Argument III. take out the equation in Table IX. With Argument IV. take out the equation in Table X. With Argument V. take out the equation  
in

\* The Arguments for hours and minutes are so small that they are here omitted; the mean motions for seconds are also omitted for the same reason. In our computations, therefore, we take to the nearest minute.



in Table XI. With Argument VI. take out the equation in Table XII. With Argument VII. take out the equation in Table XIII. With Argument VIII. take out the equation in Table XIV. With Argument IX. take out the equation in Table XV. With Argument X. take out the equation in Table XVI. With Argument XI. take out the equation in Table XVII. Take the sum of all these equations (regard being had to the signs of the first equation and the secular variation, the signs of the others being all positive), and from it subtract  $11'. 56'', 3$  and you have the value of these eleven equations; and this applied, with it's proper sign, to the longitude already found as corrected by the great equation, gives the longitude of Jupiter in his orbit.

From the longitude thus found, subtract the longitude of the node, and you get Argument XII.

With Argument XII. enter Table XXIII. and take out the reduction to the ecliptic with it's proper sign, making proportion for the minutes and seconds of the argument; and this applied to the longitude of Jupiter in his orbit, gives his true heliocentric longitude on the ecliptic, reckoned from the mean equinox.

With the Argument XII. enter Table XXII.; take out the latitude with it's secular variation, making proportion for the minutes and seconds of the Argument; and apply the secular variation, according to it's sign, to the latitude, and you have the true heliocentric latitude of Jupiter.

With the mean anomaly of Jupiter, enter Table XVIII, and take out the radius vector, and correct it by the following Tables, and you have the true distance of Jupiter from the Sun; the Earth's distance being unity.

EXAMPLE.



EXAMPLE. To find the true heliocentric Latitude and Longitude of Jupiter, on July 11, 1780, at 5<sup>h</sup>. 49' mean Time at Greenwich.

|                           | Longitude.                                          | Aphelion.                                           | Node.                                               | Arguments.  |      |      |      |     |      |       |     |              |
|---------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------|------|------|------|-----|------|-------|-----|--------------|
|                           | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>u</sup> | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>u</sup> | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>u</sup> | II.         | III. | IV.  | V.   | VI. | VII. | VIII. | IX. |              |
| Epoch for 1780            | 6. 14. 38. 16,6                                     | 6. 10. 49. 26                                       | 3. 8. 12. 13                                        | 8783        | 2177 | 0959 | 3140 | 974 | 296  | 444   | 661 |              |
| July . . . . .            | 15. 2. 47,0                                         | 28                                                  | 18                                                  | 250         | 81   | 331  | 412  | 58  | 91   | 9     | 17  |              |
| 11 <sup>d</sup> . . . . . | 54. 51,9                                            | 2                                                   | 1                                                   | 15          | 5    | 20   | 25   | 4   | 6    | 1     | 1   |              |
| 5 <sup>h</sup> . . . . .  | 1. 2,3                                              |                                                     |                                                     |             |      |      |      |     |      |       |     |              |
| 49' . . . . .             | 10,0                                                |                                                     |                                                     |             |      |      |      |     |      |       |     |              |
| Great equation            | 20. 46,1                                            |                                                     |                                                     | 32          | 55   | 87   | 141  | 12  | 7    | — 8   | — 2 |              |
| Sum . . . . .             | 7. 0. 57. 53,9                                      | 6. 10. 49. 56                                       | 3. 8. 12. 32                                        | 9080        | 2318 | 1397 | 3718 | 48  | 400  | 446   | 677 |              |
| Sum of 11 equats.         | — 1. 48. 57,8                                       | 7. 0. 57. 54                                        | 6. 29. 8. 56                                        |             |      |      |      |     | 446  | 48    |     |              |
| Long. in Orbit            | 6. 29. 8. 56,1                                      | 0. 20. 7. 58                                        | 3. 20. 56. 24                                       | Arg. X. 954 |      |      |      |     |      |       |     | 494 Arg. XI. |
| Red. to Ecl. . .          | + 18,2                                              | Arg. I.                                             | Arg. XII.                                           |             |      |      |      |     |      |       |     |              |
| Helioc. Long. .           | 6. 29. 9. 14,3                                      |                                                     |                                                     |             |      |      |      |     |      |       |     |              |

|                                                      |                     |
|------------------------------------------------------|---------------------|
| Latitude heliocentric (by Arg. XII.) 1°. 13'. 49" N. |                     |
| Secular Variation . . . . .                          | — 6                 |
| True heliocentric Latitude . . . . .                 | <u>1. 13. 43 N.</u> |

|                                    |                      |
|------------------------------------|----------------------|
| Arg. I. . . . .                    | — 1. 47. 40,0        |
| Secular Variation . . . . .        | — 5,2                |
| Maxima of the next equations . . . | — 11. 56,3           |
| Sum of the negative parts . . .    | <u>— 1. 59. 41,5</u> |
| Arg. II. . . . .                   | + 0. 1. 33,6         |
| Arg. III. . . . .                  | 4. 28,4              |
| Arg. IV. . . . .                   | 1. 9,7               |
| Arg. V. . . . .                    | 2. 20,3              |
| Arg. VI. . . . .                   | 27,4                 |
| Arg. VII. . . . .                  | 21,8                 |
| Arg. VIII. . . . .                 | 0,3                  |
| Arg. IX. . . . .                   | 0,7                  |
| Arg. X. . . . .                    | 14,8                 |
| Arg. XI. . . . .                   | 6,7                  |
| Sum of the positive parts . . .    | <u>+ 0. 10. 43,7</u> |
| Value of 11 equations . . . . .    | <u>— 1. 48. 57,8</u> |

Argument I. and the secular variation being negative, they are added to 11'. 56",3 to get the negative parts; but if the two first taken together had been positive, they would have been put above Argument II. amongst the positive equations, and then all the positive equations might have been added up, and 11'. 56",3 subtracted from the sum, as in the case of Mars.



This is the true heliocentric longitude on the ecliptic, from the *mean* equinox; and if we want it from the *true* equinox, we must apply to it the equation of the equinoxes (Table VIII. of the Sun).

In this operation, the first five lines are taken out immediately from the Tables. The great equation is thus found: For the beginning of 1780 it is  $20'. 46''$ , as found immediately in the Table\*. Now from that time to the given time, that is, July 11, 5<sup>h</sup>, the interval is 0,53 of a year (See Table IV. of the Sun); and for 10 years, the increase of the equation is  $1''. 7$ ; hence,  $10 : 0,53 :: 1'', 7 : 0'', 09$  the variation in 0,53 of a year; which added to  $20'. 46''$  gives  $20'. 46'', 09$ , or  $20'. 46'', 1$ , taking it to the nearest tenth of a second, the great equation. The arguments of the great equation are taken from the year 1780, they not having sensibly altered from that time to the given time. The sums of all the columns, give the longitude corrected by the great equation, the aphelion, the node, and the arguments, for the given time. The Arguments I, X, XI, are immediately found according to the rule. The equation to Argument I. is thus found. The Argument

is

\* The great equation for a very distant period is thus found. The variation is expressed by  $-a \times 0'', 042733 \times \sin. (5S - 2I + 5^\circ. 34'. 8'' - a \times 58'', 88)$ ; if we take  $a = 459,38$ , which is half a period,  $a \times 0'', 042733 = 19'', 6$ , which is additive *before* 1750; this then is the greatest variation of the equation, taking  $5S - 2I + 5^\circ. 34'. 8'' - a \times 58'', 88 = 90^\circ$ , so that its sine may  $= 1$ , a maximum; that is, it is the variation answering to the present greatest equation  $20'. 49'', 5$ , for this is the greatest equation when  $a = 0$ , or for 1750, and therefore will be very nearly so for the present time. Now suppose we wanted to know the equation for May 16, in the year 133, or in the year 133,37; then we multiply a half period by such a number, that the product added to 133 may produce some year in our Table (VI.), and then we find the equation for that year; multiply therefore 459,38 by 4, and add it to 133, and it gives 1970, corresponding to which, the equation is  $6'. 40'', 2$ ; now the variation of the greatest equation is  $19'', 6$  for half a period, and therefore it is  $4 \times 19'', 6 = 78'', 4$  for 4 half periods; hence, the greatest equation  $20'. 49'', 5 : 6'. 40'', 2 :: 78'', 4 : 26''$  which (as the time is *before* 1750) added to  $6'. 40'', 2$  gives  $7'. 6'', 2$  the equation for May 16, 133. This, however, is only an approximation. We calculate for half periods, because then all the Arguments return again the same.



is  $20^{\circ}. 7'. 58''$ . Now in Table VII, the equation answering to  $20^{\circ}$  is  $-1^{\circ}. 46'. 59''$ , and the variation for  $60'$  is  $5'. 9''$ ; hence,  $60' : 7'. 58'' :: 5'. 9'' : 41''$ , which (as the equation is increasing) added to  $-1^{\circ}. 46'. 59''$  gives  $-1^{\circ}. 7'. 40''$  the equation required. And to find the secular variation, that variation is  $-16''.98$  for  $20^{\circ}$ , and it changes  $0''.82$  for  $60'$ ; hence,  $60' : 7'. 58'' :: 0''.82 : 0''.11$ , which (as the variation increases) added to  $-16''.98$  gives  $-17''.09$  the secular variation corresponding to the given argument. Now this secular variation is reckoned from 1750, and from thence to July 11, 1780, there has elapsed 30,53 years; hence,  $100 : 30,53 :: -17''.09 : -5''.2$  the secular variation for 30,53 years. With 9080 take the equation from Table VIII. Now the equation is  $1'. 30''.6$  for the Argument 9000, and it changes  $3''.7$  for 100; hence,  $100 : 80 :: 3''.7 : 3''$ , which (as the equation is increasing) added to  $1'. 30''.6$  gives  $1'. 33''.6$  the equation required. By proceeding thus to Argument XI. we get all these equations. And by taking the difference of the positive and negative parts, we obtain  $1^{\circ}. 48'. 57''.8$  the value of these 11 equations, which applied, with the proper sign, to  $7^{\circ}. 0^{\circ}. 57'. 53''.9$  gives  $6^{\circ}. 29^{\circ}. 8'. 56''.1$  the longitude of Jupiter in his orbit. Now for the reduction of this to the ecliptic, we have Argument XII.  $= 3^{\circ}. 20^{\circ}. 56'. 24''$ ; and the reduction in Table XXIV. is  $+17''.5$  for  $3^{\circ}. 20^{\circ}$ ; and it changes  $0''.7$  for  $60'$ ; hence,  $60' : 56'. 24'' :: 0''.7 : 0''.7$ , taking it to the nearest tenth of a second; and this (as the reduction increases) added to  $+17''.5$  gives  $+18''.2$  the reduction, which applied to  $6^{\circ}. 29^{\circ}. 8'. 56''.1$  gives  $6^{\circ}. 29^{\circ}. 9'. 14''.3$  the true heliocentric longitude of Jupiter in his orbit, from the mean equinox. With Argument XII. enter Table XXIII, and the latitude for  $3^{\circ}. 20^{\circ}$  is  $1^{\circ}. 46'. 16''$  N., and the variation is  $29''$  for  $60'$ ; hence,  $60' : 56'. 24'' :: 29'' : 27''$ , which (as the equation is diminishing) subtracted from  $1^{\circ}. 46'. 16''$  N. gives  $1^{\circ}. 13'. 49''$  N. the latitude uncorrected for the secular variation. Now for  $3^{\circ}. 20^{\circ}. 56'. 24''$  the secular variation is  $-20''.5$ , as we may take it the same as for  $3^{\circ}. 21^{\circ}$ ; and the time from 1750 being 30,53 years, we have,



100 : 30,53 ::  $-20''$ ,5 :  $-6''$  the secular variation for 30,53 years, and this applied to  $1^\circ$ . 13'. 49" N. gives  $1^\circ$ . 13'. 43" N. the true heliocentric latitude of Jupiter.

*Given the heliocentric Latitude and Longitude of Jupiter; to find the geocentric Latitude and Longitude, and his Distance from the Sun and Earth.*

This computation is made from the rule in p. 79.

**EXAMPLE.** *To find the geocentric Latitude and Longitude of Jupiter, and his Distance from the Earth, on July 11, 1780, at 5<sup>h</sup>. 49' mean Time.*

|                                             |                 |                                                |            |
|---------------------------------------------|-----------------|------------------------------------------------|------------|
| Hel. long. Jupiter . . .                    | 6. 29. 9. 14,3  | Arg. I. . . . .                                | 5,43252    |
| Longitude Earth . . .                       | 9. 19. 52. 28,3 | Secular Variation . . . . .                    | 20         |
| Commut. . . . .                             | 2. 20. 43. 14,0 | Arg. II. . . . .                               | 285        |
| Sup. (SvE + SEv) . . .                      | 3. 9. 16. 46    | IV. . . . .                                    | 2          |
| Half Sup. . . . .                           | 1. 19. 38. 23   | V. . . . .                                     | 419        |
|                                             | 1. 8. 52. 16    | Radius Vector . . . . .                        | 5,43978    |
| Elongation . . . . .                        | 2. 28. 30. 39   | Log. rad. vec. . . . .                         | 0,7355813  |
| Long. Sun + 20" . . .                       | 3. 19. 52. 28,3 | Log. cos. hel. lat. . . . .                    | 9,9999001  |
| Geo. Long. . . . .                          | 6. 18. 23. 7,3  | Log. Sv . . . . .                              | 0,7354814  |
| Ar. co. l. sin. $99^\circ$ . 16'. 46" . . . | 0,00573         | Log. Sv + 10, . . . . .                        | 10,7354814 |
| sin. 88. 30. 39 . . . . .                   | 9,99985         | Log. SE . . . . .                              | 0,0071010  |
| Tan. hel. lat. 1. 13. 43 . . . . .          | 8,33126         | Tan. $79^\circ$ . 24'. 48" ( $d^\circ$ ) . . . | 10,7283804 |
| Tan. geo. lat. 1. 14. 39 . . . . .          | 8,33684         | 45                                             |            |
|                                             |                 | Tan. 34. 24. 48 . . . . .                      | 9,8357262  |
|                                             |                 | Tan. 49. 38. 23 . . . . .                      | 10,0706464 |
|                                             |                 | Tan. 38. 52. 16 . . . . .                      | 9,9063726  |

|                                               |           |
|-----------------------------------------------|-----------|
| Log. Sv . . . . .                             | 0,7354814 |
| Log. sin. . . $80^\circ$ . 43'. 14" . . . . . | 9,9942791 |
| Ar. co. l. sin. 88. 30. 39 . . . . .          | 0,0001467 |
| Ar. co. l. cos. 1. 14. 39 . . . . .           | 0,0001924 |
| Log. EP = 5,3715 . . . . .                    | 0,7300996 |

On



*On the Tables of SATURN.*

The Tables of Saturn are in all respects similar to those of Jupiter. The theory of the equations was given by M. DE LA PLACE in the *Memoirs* for 1785, 1786; and were computed by M. DE LAMBRE. Table I. contains the epochs of the mean longitude, of the aphelion and node, reckoned from the mean equinox; together with the Arguments of the equations, expressed by dividing the circle into 10000 equal parts for Arguments II, III, IV, and into 1000 equal parts for Arguments V, VI. Table II. contains the mean motions of the same for years. Table III. contains the mean motions for months; that is, for the beginning of each month reckoned from the beginning of the year. Table IV. contains the mean motion for days. Table V. contains the mean motion for hours and minutes. Table VI. contains the great equation for Saturn for every 10 years. Table VII. contains the equation of the orbit of Saturn for the year 1750, with the secular variation. Table VIII. contains the equation of the orbit corresponding to Argument II. Table IX. contains the equation answering to Argument III. Table X. contains the equation answering to Argument IV. Table XI. contains the equation answering to Argument V. Table XII. contains the equation answering to Argument VI. Table XIII. contains the equation answering to Argument VII, which  $\text{Arg.} = \text{Arg. V} + \text{Arg. VI} - 306$ . Table XIV. contains the radius vector of the orbit of Saturn for the year 1750, with the secular variation; the mean distance of the Earth from the Sun being unity. Table XV. contains the equation of the radius vector answering to Argument II. Table XVI. contains the equation answering to Argument III. Table XVII. contains the equation answering to Argument IV. Table XVIII. contains the heliocentric latitude for the year 1750, with the secular variation. Table XIX. contains the reduction to the ecliptic, with the log. cosine of the heliocentric latitude.

All



All the above-mentioned equations, the equation of the orbit excepted, arise from the attraction of Jupiter, and depend upon the relative situations of Jupiter and Saturn. The Arguments of the equations in the first four Tables, are in every respect similar to those in the first four Tables of Jupiter.

The great equation of Saturn we have already stated to be

$$-(48'. 44'' - a \times 0'',1) \times \sin. (5S - 2I + 5^\circ. 34'. 8'' - a \times 58'',88).$$

And the same notation remaining, the other equations are

$$\begin{aligned} &+ 20'' \times \sin. (H - h + 69^\circ. 38'. 40'') - 31'',5 \times \sin. 2 (H - h) + 6'',6 \times \sin. 3 (H - h) \\ &- 6'. 59'',3 \times \sin. (H - 2h - 15^\circ. 0'. 57'' + a \times 14'',215) \\ &- 10. 51,0 \times \sin. (2H - 4h + 55. 52. 19 + a \times 42,88) \\ &- 49,6 \times \sin. (3h - H + 88. 20. 19) \\ &- 21,8 \times \sin. (2H - 3h + 21. 50. 55) \\ &+ 11,0 \times \cos. H. \end{aligned}$$

Now the sum of the maxima of these six equations, is  $19'. 57'',3$ ; and in the Tables computed from these equations, each equation is increased by it's maximum, in order to render all the equations additive, this quantity therefore must always be subtracted from the sum of the equations taken from the Tables.

*To find the heliocentric Latitude and Longitude of Saturn.*

From Table I. take out the epochs of the mean longitude, the aphelion and node, with the Arguments II, III, IV, V, VI; and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before. Under which, from Table II, place the mean motion in longitude, of the aphelion and node, with the Arguments, answering to the number of years elapsed since the epoch, to the given year.

Under



Under these, write down (Table III.) the mean motions of the same, for the given month.

Under these, write down (Table IV.) the mean motions of the same, for the given day of the month.

Under these, write down (Table V.) the mean motions of the same, for hours and minutes.

Under these, write down the great inequality (Table VI.) in the First Column, with the corresponding Arguments.

Add together the numbers in the several columns, rejecting 12 S, or any multiple thereof, if they occur; and in the Arguments, rejecting 10000 in the Arguments II, III, IV, and 1000 in the Arguments V, VI, VII, or any multiples thereof; and you get the mean longitude corrected for the great equation, the aphelion, and the node, and the Arguments corrected for the great equation.

From the longitude of Saturn corrected for the great equation, as already found, subtract the longitude of the aphelion, and you have Argument I. or mean anomaly.

With Argument I. take out the equation of Saturn's orbit in Table VII, together with the secular variation, with their proper signs, except the time be *before* 1750, in which case, the secular variation is to be taken out with a contrary sign, making proportion for the minutes and seconds of the Argument, and you first get the equation; and doing the same for the secular variation, you get also the secular variation; then say, 100 : the number of years from 1750 to the given time :: secular variation above found : the secular variation required. *Before* 1750, the secular variation must be taken with a sign contrary to that found in the Table. With Argument II. take out the equation in Table VIII, making proportion in this, and in the following equations, for the intermediate numbers of the Arguments. With Argument III. take out the equation in Table IX.

With



With Argument IV. take out the equation in Table X. With Argument V. take out the equation in Table XI. With Argument VI. take out the equation in Table XII. With Argument VII. take out the equation in Table XIII. Take the sum of all these equations (regard being had to the signs of the first equation and the secular variation, the signs of the others being all positive), and from it subtract  $19'. 57'', 3$ , and you have the value of these seven equations; and this applied, with it's proper sign, to the longitude already found as corrected by the great equation, gives the longitude of Saturn in his orbit.

From the longitude thus found, subtract the longitude of the node, and you get Argument VIII.

With Argument VIII. enter Table XIX. and take out the reduction to the ecliptic, with it's proper sign, making proportion for the minutes and seconds of the Arguments; and this applied to the longitude of Saturn in his orbit, gives his true heliocentric longitude on the ecliptic, reckoned from the mean equinox.

With Argument VIII. enter Table XVIII. and take out the latitude with it's secular variation, making proportion for the minutes and seconds of the Argument, and apply the secular variation, according to it's sign, to the latitude, and you have the true heliocentric latitude of Saturn.

With the mean anomaly of Saturn, enter Table XIV. and take out the radius vector, and correct it by the following Tables, and you have the true distance of Saturn from the Sun.

**EXAMPLE.**



EXAMPLE. To find the true heliocentric Latitude and Longitude of Saturn, on August 21, 1787, at 11<sup>h</sup>. 51', mean Time at Greenwich.

|                         | Longitude.                                          | Aphelion.                                                                   | Node.                                               | Arguments.   |              |               |                               |            |
|-------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------|--------------|--------------|---------------|-------------------------------|------------|
|                         | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>"</sup> | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>"</sup>                         | <sup>s</sup> <sup>o</sup> <sup>i</sup> <sup>"</sup> | II.          | III.         | IV.           | V.                            | VI.        |
| Epoch for 1787          | 10. 24. 2. 10,2                                     | 8. 28. 49. 52                                                               | 3. 21. 49. 50                                       | 2308         | 3326         | 6655          | 566                           | 562        |
| August . . . .          | 7. 6. 5,9                                           | 39                                                                          | 18                                                  | 292          | 95           | 191           | 10                            | 39         |
| 21 <sup>d</sup> . . . . | 42. 12,5                                            | 4                                                                           | 2                                                   | 29           | 9            | 19            | 1                             | 4          |
| 11 <sup>h</sup> . . . . | 55,3                                                |                                                                             |                                                     |              |              |               |                               |            |
| 51' . . . .             | 4,2                                                 |                                                                             |                                                     |              |              |               |                               |            |
| Great Equation          | 11. 1. 51. 28,1<br>— 48. 39,0                       | 8. 28. 50. 35<br>11. 1. 2. 49,1                                             | 3. 21. 50. 10<br>10. 25. 36. 25,4                   | 2629<br>+ 32 | 3430<br>+ 55 | 6865<br>+ 109 | 577<br>— 8                    | 605<br>+ 9 |
| Small Equations         | 11. 1. 2. 49,1<br>— 5. 26. 22,7                     | 2. 2. 12. 14,1<br>Mean Anom.<br>Arg. I.                                     | 7. 3. 46. 15,4<br>Arg. VIII.                        | 2661         | 3485         | 6974          | 569                           | 614<br>569 |
| Long. in Orbit          | 10. 25. 36. 26,4                                    |                                                                             |                                                     |              |              |               |                               | 183        |
| Reduction . .           | 1. 30,6                                             |                                                                             |                                                     |              |              |               |                               | 306        |
| Long. on Ecl. .         | 10. 25. 34. 52,1                                    | Arg. I. . . . . — 5. 30. 34,8<br>Const. . . . . — 19. 57,3<br>— 5. 50. 32,1 |                                                     |              |              |               | VII. 887                      |            |
|                         |                                                     | Sec. Var. . . . . + 34,2                                                    |                                                     |              |              |               | Lat. . . . . 1. 23. 19 S.     |            |
|                         |                                                     | Arg. II. . . . . 1. 2,7                                                     |                                                     |              |              |               | Sec. Var. . . . . 3,3         |            |
|                         |                                                     | Arg. III. . . . . 26,5                                                      |                                                     |              |              |               | True Lat. . . . . 1. 23. 18,7 |            |
|                         |                                                     | Arg. IV. . . . . 19. 30,6                                                   |                                                     |              |              |               |                               |            |
|                         |                                                     | Arg. V. . . . . 1. 35,1                                                     |                                                     |              |              |               |                               |            |
|                         |                                                     | Arg. VI. . . . . 41,2                                                       |                                                     |              |              |               |                               |            |
|                         |                                                     | Arg. VII. . . . . 18,8                                                      |                                                     |              |              |               |                               |            |
|                         |                                                     | 0. 24. 9,1                                                                  |                                                     |              |              |               |                               |            |
|                         |                                                     | — 5. 26. 22,7                                                               |                                                     |              |              |               |                               |            |

### On the Tables of the GEORGIAN.

The First Table contains the epochs of the mean longitude, of the aphelion and node; together with the Arguments of the equations, expressed by dividing the circle into 10000 parts for Arguments IV, VI, and into 1000 equal parts for Arguments II, III, V, VII, VIII. Table II. contains the mean motions for the same, for years. Table III. contains the mean motions for months; that is, from the beginning of the year to the beginning of each month. Table IV. contains the mean motion for days. Table V.

VOL. III.

o

contains



contains the mean motions for hours and minutes. Table VI. contains the equation of the orbit for 1780, with the secular variation. Table VII. contains the equation of the orbit answering to Argument II. Table VIII. contains the equation answering to Argument III. Table IX. contains the equation answering to Argument IV. Table X. contains the equation answering to Argument V. Table XI. contains the equation answering to Argument VI. Table XII. contains the equation answering to Argument VII. Table XIII. contains the equation answering to Argument VIII. Table XIV. contains the radius vector for 1780, with the secular variation; the mean distance of the Earth from the Sun being unity. Table XV. contains the equations of the radius vector corresponding to the Arguments II, III, IV, VII. Table XVI. contains the heliocentric latitude for the year 1780, with the secular variation. Table XVII. contains the reduction to the ecliptic, with the logarithmic cosine of the heliocentric latitude.

All the above-mentioned equations, the equation of the center excepted, arise from the attraction of Jupiter and Saturn. They were computed by M. DE LAMBRE from the theory of M. DE LA PLACE.

The sum of the maxima of the seven equations is  $7'. 20''$ ; and in the Tables computed from these equations, each equation is increased by it's maximum, in order to render all the equations additive; this quantity therefore must always be subtracted from the sum of the equations taken from the Tables.

*To find the heliocentric Latitude and Longitude, and the Logarithm of the Distance of the Georgian from the Sun.*

From Table I. take out the mean longitude, the aphelion, and node, together with the Arguments II, III, IV, V, VI, VII, VIII.; and place them in an horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch; and  
take



take out as before. Under which, from Table II, place the mean motion in longitude, of the aphelion, and node, with the arguments, answering to the number of years elapsed since the epoch, to the given year.

Under these, write down (Table III.) the mean motions of the same, for the given month.

Under these, write down (Table IV.) the mean motions of the same, for the given day of the month.

Under these, write down (Table V.) the mean motions of the same, for hours and minutes.

Add together the numbers in the several columns, rejecting 12 *S*, or any multiples thereof, if they occur; and in the arguments, rejecting 10000 in the Arguments IV, VI, and 1000 in the Arguments II, III, V, VII, VIII, or any multiples thereof; and you get, the mean longitude, the aphelion, and node, and the arguments for the given time.

From the mean longitude of Saturn subtract the longitude of the aphelion, and you have Argument I, or mean anomaly.

With Argument I. take out the equation of the orbit in Table VI, together with the secular variation, with their proper signs, except the time be *before* 1780, in which case, the secular variation is to be taken out with a contrary sign, making proportion for the minutes and seconds of the argument, and you first get the equation; and doing the same for the secular variation, you get the secular variation; then say, 100 : the number of years from 1780 to the given time :: secular variation above found : secular variation required. *Before* 1780, the secular variation must be taken with a sign contrary to that found in the Table. With Argument II. take out the equation in Table VII, making proportion in this, and in the following equations, for the intermediate numbers of the arguments. With Argument III. take out the equation in Table VIII. With Argument IV. take out the equation in Table IX. With Argument V. take out the equation in Table X. With Argument VI. take out the equation in Table XI.



Table XI\*. With Argument VII. take out the equation in Table XII. With Argument VIII. take out the equation in Table XIII. Take the sum of all these equations (regard being had to the signs of the first equation and of the secular variation, the signs of the others being positive), and from it subtract  $7'. 20''$ , and you get the value of these eight equations; and this applied, with it's proper sign, to the mean longitude already found, gives the longitude of the Georgian in his orbit.

From the longitude thus found, subtract the longitude of the node, and you have Argument IX.

With Argument IX. enter Table XVII. and take out the reduction to the ecliptic with it's proper sign, making proportion for the minutes and seconds of the argument; and this applied to the longitude of the Georgian in his orbit, gives his true heliocentric longitude on the ecliptic, reckoned from the mean equinox.

With Argument IX. enter Table XVI.; and take out the latitude, making proportion for the minutes and seconds of the argument; and you have the true heliocentric latitude of the Georgian.

With

\* The period of this equation is nearly 569 years; and this ought to be considered, in order to get the true mean motion, in the same manner as the periods of the great equations of Jupiter and Saturn were considered, in order to obtain their mean motions; and their mean longitudes were corrected by these equations, in order to find the mean anomaly. And if we wish to take into consideration the effect of Equation VI. in the mean anomaly, we must add to the aphelion  $+ 4'. 20''$  — Equation VI. The annexed Table therefore gives the correction of the aphelion from 1690 to 1900; and with the aphelion corrected in this manner, we may calculate very accurately the equation of the center. But as these changes will not produce any sensible effect upon the longitudes for a considerable time, we may for the present omit this correction.

| Years. | Cor. Aph.   | Years. | Cor. Aph.    |
|--------|-------------|--------|--------------|
| 1690   | $+ 0'. 5''$ | 1820   | $+ 0'. 37''$ |
| 1700   | $- 0. 1$    | 1830   | $+ 0. 49$    |
| 1720   | $- 0. 10$   | 1840   | $+ 1. 2$     |
| 1740   | $- 0. 13$   | 1850   | $+ 1. 16$    |
| 1756   | $- 0. 10$   | 1860   | $+ 1. 30$    |
| 1769   | $+ 0. 6$    | 1870   | $+ 1'. 45$   |
| 1780   | $+ 0. 1$    | 1880   | $+ 1. 59$    |
| 1790   | $+ 0. 8$    | 1890   | $+ 2. 14$    |
| 1800   | $+ 0. 16$   | 1900   | $+ 2. 28$    |
| 1810   | $+ 0. 26$   |        |              |



With the mean anomaly, enter Table XIV, and take out the radius vector; and correct it by the following Table XV, and you have the true distance of the Georgian from the Sun, that of the Earth being unity.

EXAMPLE. To find the heliocentric Latitude and Longitude of the Georgian, on Nov. 26, 1789, at 16<sup>h</sup>. 14' mean Time at Greenwich.

|                                             | Longitude. |     |     |      | Aphelion. |     |     |    | Node. |     |     |    | Arguments.                           |      |      |     |      |      |       |
|---------------------------------------------|------------|-----|-----|------|-----------|-----|-----|----|-------|-----|-----|----|--------------------------------------|------|------|-----|------|------|-------|
|                                             | s          | o   | i   | n    | s         | o   | i   | n  | s     | o   | i   | n  | II.                                  | III. | IV.  | V.  | VI.  | VII. | VIII. |
| Epoch for 1789 .                            | 4.         | 6.  | 12. | 41,4 | 11.       | 17. | 11. | 8  | 2.    | 12. | 48. | 5  | 618                                  | 232  | 0139 | 885 | 0825 | 949  | 563   |
| November . .                                |            | 3.  | 34. | 39,8 |           |     |     | 44 |       |     |     | 13 | 18                                   | 8    | 85   | 27  | 15   | 60   | 50    |
| 26 <sup>d</sup> . . .                       |            |     | 18. | 21,6 |           |     |     | 4  |       |     |     | 1  | 2                                    | 1    | 7    | 2   | 1    | 5    | 4     |
| 16 <sup>h</sup> . . .                       |            |     |     | 28,2 |           |     |     |    |       |     |     |    |                                      |      |      |     |      |      |       |
| 14' . . .                                   |            |     |     | ,4   |           |     |     |    |       |     |     |    |                                      |      |      |     |      |      |       |
| Sum . . . . .                               | 4.         | 10. | 6.  | 11,4 | 11.       | 17. | 11. | 56 | 2.    | 12. | 48. | 19 | 638                                  | 241  | 0231 | 914 | 0841 | 14   | 617   |
| Sum of 8 equats.                            | —          | 3.  | 21. | 45,5 | 4.        | 10. | 6.  | 11 | 4.    | 6.  | 44. | 26 |                                      |      |      |     |      |      |       |
| Long. in Orbit                              | 4.         | 6.  | 44. | 25,9 | 4.        | 22. | 54. | 15 | 1.    | 23. | 56. | 7  | Arg. I. . . . . — 3. 22. 54,5        |      |      |     |      |      |       |
| Reduction . . .                             |            |     | —   | 8,9  |           |     |     |    |       |     |     |    | — 7. 20                              |      |      |     |      |      |       |
| Helio. Long. .                              | 4.         | 6.  | 44. | 17   |           |     |     |    |       |     |     |    | — 3. 30. 14,5                        |      |      |     |      |      |       |
| Heliocentric Latitude . . . . . 37'. 23",9. |            |     |     |      |           |     |     |    |       |     |     |    | Secular Variation . . . +0. 0. 0,7   |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. II. . . . . 4,1                 |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. III. . . . . 5,9                |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. IV. . . . . 2. 51,7             |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. V. . . . . 2,3                  |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. VI. . . . . 4. 12,2             |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. VII. . . . . 1. 4,6             |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Arg. VIII. . . . . 7,5               |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | +0. 8. 29,0                          |      |      |     |      |      |       |
|                                             |            |     |     |      |           |     |     |    |       |     |     |    | Sum of Equations . . . — 3. 21. 45,5 |      |      |     |      |      |       |

This is the true heliocentric longitude from the *mean* equinox; and if we want it from the *true* equinox, we must apply the equation of the equinoxes. (Table VIII. of the Sun).

In this operation, the first five lines are taken out immediately from the Tables; and the sums of all the columns give the mean longitude, the aphelion, the node, and the arguments for the given time. Argument I. is immediately found according to the rule, the equation to which is thus found. The equation (Table VI.) for 4°. 22° is — 3°. 26'. 59",6, and the variation



variation for  $60'$  is  $4'.31'',1$ ; hence,  $60' : 54'.15'' :: 4'.31'',1 : 4'.5'',1$ , which (as the equation is decreasing) subtracted from  $-3^\circ.26'.59'',6$  gives  $-3^\circ.22'.54'',5$  the equation required. And to find the secular variation, that variation is  $+7'',44$  for  $4^\circ.22'$ , and it decreases  $0'',16$  for  $60'$ ; hence,  $60' : 54'.15'' :: 0'',16 : 0'',15$ , which taken from  $+7'',44$ , leaves  $+7'.29''$  the secular variation corresponding to the given argument. Now this secular variation is reckoned from 1780, and from thence to November 26, 1789, there has elapsed 9,9 years; hence,  $100 : 9,9 :: +7'.29'' : +0'',7$  the secular variation for 9,9 years. With Argument II, 638, take the equation from Table VII. Now the equation for 630 is  $4'',7$ , and it changes  $0'',7$  for 10; hence,  $10 : 8 :: 0'',7 : 0'',6$ , which (as the equation decreases) subtracted from  $4'',7$  leaves  $4'',1$  the equation required. By proceeding thus to Argument VIII. we get all the equations; and by taking the difference of the positive and negative parts, we get  $-3^\circ.21'.45'',5$  for the value of the first eight equations; which applied to  $4^\circ.10'.6'.11'',4$  gives  $4^\circ.6'.44'.25'',9$  the longitude of the Georgian in his orbit. From this longitude subtract  $2^\circ.12'.48'.19''$  the longitude of the node, and we get  $1^\circ.23'.56'.7''$ , which is Argument IX; with which, enter Table XVII. and take out the reduction which is  $-8'',9$ , and this applied to  $4^\circ.6'.44'.25'',9$  gives  $4^\circ.6'.44'.17''$  the heliocentric longitude of the Georgian on the ecliptic from the mean equinox. Also, with Argument IX. enter Table XVI, and take out the latitude. Now for  $1^\circ.23'$  the latitude is  $36'.57''$ , and it increases  $28'',8$  for  $60'$ ; hence,  $60' : 56'',7 :: 28'',8 : 26'',9$ , which added to  $36'.57''$  gives  $37'.23'',9$  the heliocentric latitude of the Georgian.



*On the Tables for Computing the ECLIPSES of JUPITER'S  
SATELLITES.*

These Tables were computed by M. DE LAMBRE from the theory of the mutual attractions of the Satellites, given by M. DE LA PLACE in the *Memoirs de l'Académie* for 1784, and 1788; the forms of the equations were there given, but their values were found from observation. Hence, there are no empiric equations in these Tables, as there were in those of WARGENTIN, which were in use before. The construction of the epochs of the mean conjunctions has been already explained (Art. 450, 452); and these epochs are diminished by the sum of the maxima of the subtractive equations, and are thus found in Tables VIII, XVII, XXVII, XXXIX. Now the equations themselves are each increased by it's like maxima, by which means they all become additive; and it is manifest, that if you diminish the epochs and increase the sum of all the equations by the same quantity, when added together, the effect will be the same as if you took the true epoch and the true equations. The mean conjunctions are such as they would be, having taken away the aberration of light.

The Argument *A* of the epochs (Art. 419.) is the mean anomaly of Jupiter, expressed by the hundredth part of a degree, regard being had to his great inequality, so that the whole circle contains 36000 equal parts.

The Argument *S* is the mean anomaly of the Sun, the circle being divided into 10000 parts.

The Argument *B* is the mean longitude of the Sun — the mean heliocentric longitude of Jupiter — sum of all the perturbations for the instant of the first mean conjunction of the year — greatest equation of the center of Jupiter — greatest equation of the Sun's center; hence, if to this value of *B* we add the great equations of the Sun's and Jupiter's center, and apply the equations of their orbits, we obtain the difference of the true longitude  
of



of the Sun and the true heliocentric longitude of Jupiter, the circle being divided into 10000 equal parts.

The Argument *C* is the mean longitude of the First Satellite seen from Jupiter — mean longitude of the Second seen from Jupiter, the circle being divided into 10000 equal parts. The numbers *C* are diminished by half the greatest equation of the center of Jupiter.

The Arguments *F* and *G* serve to find two small equations arising from the excentricities of the orbits of the Third and Fourth Satellites, the whole circle being divided into 1000 equal parts.

The Argument *H* is the true distance of Jupiter from the node of the Satellite, supposing the equation of the center subtractive, and at it's maximum, the whole circle being divided into 10000 equal parts. This Argument *H* is corrected, by adding to it the true equation of the center, and the greatest equation of the center. The Correction of *H* is the complement to 306 of the first correction of *B*; and 306 is twice the greatest equation of Jupiter. The Arguments *B* and *H* are also corrected for the equation of the center of Jupiter, but these corrections have a different sign; hence, the sum of these two corrections, rendered always additive, is 306.

The Correction *C*, which is applied to the Argument *C*, is always half the Correction of *H*.

The Corrections of *B*, *C*, *H*, are taken in the same Table with the Argument *A*.

The Arguments *B*, *C*, *H*, contain also the perturbations of Jupiter, which may alter the annual motions 2 or 3 parts of the circle.

The Number *B* has a second correction, which depends upon the Argument *S*, it being the true equation of the Sun's center + the greatest equation of the center.

The Table of the decimal parts of the year serve to facilitate the calculations of the equations, which are given from 1660 to 1820.

These



These equations are the sum of the great equation of Jupiter (p. 66), and of the Equations II, III, IV, V, VI, VII, VIII, IX, X, XI, (p. 71—77); there are added to them, the variation of the equation of the center, all this converted into mean synodic time of the Satellites, and moreover, the effect of the perturbations of the radius vector of Jupiter upon the equation of light.

The Equation *A* contains the equation of the center of Jupiter, converted into mean synodic time, supposing the greatest equation such as it was in 1750, and the equation of light proportional to the actual radius vector of Jupiter; that is, the radius vector of Jupiter converted into time at the rate of  $42'.56''$  for the mean distance, but diminished by the sum of the subtractive equations of light, found in the following Tables.

The Equation *B* is very nearly the same as the great equation of light of WARGENTIN (Art. 420); but M. DE LAMBRE supposes  $42'.46''$  for the mean distance of Jupiter, and therefore  $8'.13''.2$  for the mean distance of the Sun, and  $20''.255$  for the Sun's aberration. This he found from computing a great number of eclipses of the First Satellite, and it agrees very well with Dr. BRADLEY's Observations.

The Equation *C* is very nearly the same as that of WARGENTIN (Art. 421), only the principal term is  $3'.39''$  instead of  $3'.30''$ .

The Argument *F* is the mean longitude of the First Satellite  $- 2$  longitude of the Second  $+$  longitude of the apside of the Third.

The Argument *G* is Argument *F*, putting the apside of the Fourth for that of the Third.

The Argument *H* serves to find the reduction (Art. 426), which is here made always additive, and the semi-duration (Art. 430). By the side of the half duration we find a number *N*; which, with the Argument *C*, serves to find, in one Table, the correction of the semi-duration, arising from the attraction of the Second Satellite, changing the radius vector of the First, thereby altering the chord of duration. This correction has always



the same sign as the semi-duration; that is, subtractive for immersion, and additive for emersion. The *maximum* is subtracted beforehand, from all the semi-durations.

*To compute an ECLIPSE of the FIRST SATELLITE.*

In Table VIII. take out the epoch of the mean conjunction for the given year, together with the Arguments  $A, S, B, C, F, G, H$ ; and place them in an horizontal line.

In Table IX. take out the revolutions for the given day of the month, or for the nearest day preceding the given day, together with the Arguments; and place them under the first line.

Add up the Arguments  $A$  and  $S$ , rejecting 36000 in  $A$ , and 10000 in  $S$ , if necessary.

With the Argument  $A$  thus found, enter Table I. (common to all the Satellites), and take out the corrections of  $B, H, C$ ; and place them under  $B, H, C$ , respectively.

With the Argument  $S$  above found, enter Table II. (common to all the Satellites), and take out another correction of  $B$ , and place it under  $B$ .

Add together each of the Arguments  $B, C, F, G, H$ , respectively; rejecting in  $B, C, H$ , 10000, and in  $F, G$ , 1000, or any multiples thereof, if necessary.

In Table III. take out the decimal parts of a year, answering to the given day of the month.

In Table X. take out the equation answering to the given year and day of the year, the day being expressed by the above decimal of the year; and put this equation in the First Column.

With the Argument  $A$ , enter Table XI. and take out the corresponding equation; and place it in the First Column.

With the Arguments  $B, A$ , enter Table V. and take out the equation,  
and



and put it in the First Column. The following equations are also to be put in the First Column.

With the Arguments  $B$ ,  $S$ , enter Table VI; and take out the equation.

With the Argument  $B$ , enter Table VII; and take out the equation.

With the Argument  $C$ , enter Table XII; and take out the equation.

With the Argument  $F$ , enter Table XIII; and take out the equation.

With the Argument  $G$ , enter Table XIII; and take out the equation.

With the Argument  $H$ , enter Table XIV; and take out the reduction.

Take the sum of the quantities in the First Column, and you have the mean time of the middle of the eclipse.

With Argument  $H$ , enter Table XV; and take out the semi-duration. Take out also the Argument  $N$ .

With the Arguments  $C$ ,  $N$ , enter Table XVI, and take out the correction of the semi-duration, which has always the same sign as the semi-duration; and add to it the semi-duration, and you have the correct semi-duration.

Subtract from and add to the mean time of the middle of the eclipse, the correct semi-duration, and you have the mean times of the immersion and emersion. And if to these you apply the equation of time, which may be taken from the Nautical Almanack, you have the *apparent* times of the immersion and emersion.

If  $B$  be less than 5000, the eclipse is *before* opposition, and the immersion only is visible; if  $B$  be greater than 5000, it is *after* opposition, and the emersion only is visible.

EXAMPLE.



EXAMPLE. To calculate the Time of the Emersion of the First Satellite,  
May 2, 1791.

|                                        |                 | <i>A</i> | <i>S</i> | <i>B</i> | <i>C</i> | <i>F</i> | <i>G</i> | <i>H</i> |
|----------------------------------------|-----------------|----------|----------|----------|----------|----------|----------|----------|
| Epoch, 1791 . . . . .                  | 0. 4. 43. 7,8   | 33792    | 5027     | 2887     | 7612     | 746      | 152      | 5806     |
| May . . . . .                          | 2. 2. 53. 20,3  | 1015     | 3343     | 3062     | 6395     | 253      | 252      | 282      |
| 1791, 34 . . . . .                     | 3. 50,6         | 34807    | 8370     | 123      | 92       |          |          | 183      |
| Equation <i>A</i> . . . . .            | 1. 22. 58,6     |          |          | 98       |          |          |          |          |
| Equation <i>B</i> , <i>A</i> . . . . . | 1,3             |          |          | 6170     | 4099     | 999      | 404      | 6271     |
| Equation <i>B</i> , <i>S</i> . . . . . | 5,6             |          |          |          |          |          |          |          |
| Equation <i>B</i> . . . . .            | 2. 32,1         |          |          |          |          |          |          |          |
| Equation <i>C</i> . . . . .            | 6. 41,7         |          |          |          |          |          |          |          |
| Equation <i>F</i> . . . . .            | 11,2            |          |          |          |          |          |          |          |
| Equation <i>G</i> . . . . .            | 1,6             |          |          |          |          |          |          |          |
| Reduction <i>H</i> . . . . .           | 0,0             |          |          |          |          |          |          |          |
| Mean Time of Middle                    | 2. 9. 12. 50,8  |          |          |          |          |          |          |          |
| Semi-duration . . . . .                | 1. 5. 36,9      |          |          |          |          |          |          |          |
| Mean Time of Immers.                   | 2. 8. 7. 13,9   |          |          |          |          |          |          |          |
| Mean Time of Emers.                    | 2. 10. 18. 27,7 |          |          |          |          |          |          |          |

|                                           |            |               |
|-------------------------------------------|------------|---------------|
| Semi-duration, <i>H</i> gives             | 1. 5. 25,6 | <i>N</i> = 91 |
| Cor. of Semi-durat. <i>C</i> , <i>N</i> , | 11,3       |               |
| Cor. Semi-duration . . . .                | 1. 5. 36,9 |               |

In this operation, the two first lines are immediately taken from Tables VIII. and IX, and the sum of each Argument *A*, *S*, is taken; and with Argument *A* = 34807 in Table I. take out 123 the correction of *B*, 92 that of *C*, and 183 that of *H*; in taking out which, if the argument be not found in the Table, proportion is made for the intermediate numbers, but in the present case, you see at once what the correction is: For instance, for the first correction, it varies only 2 for 100 change of argument; and therefore for the change 7 of argument, we may take the correction the same as for 34800. With the Argument *S* = 8370 in Table II. another correction 98 is found for *B*; and the Columns *B*, *C*, *F*, *G*, *H*, are now added up, by which we get the complete arguments, in which there are no complete circles to be rejected. In Table III. the decimal part of a year for May 2, is 34; therefore we call the year 1791, 34. with which we enter Table X. and take out the equation 3'. 50",6. With Argument *A* = 34807, enter Table XI. and take out the equation thus: The equation for 34800 is 1<sup>h</sup>. 23'. 1",2; and for the change of 100 in the argument, the change in the equation is 37",4; hence,



hence,  $100 : 7 :: 37'',4 : 2'',6$ , which (as the equation is decreasing) subtracted from  $1^h. 23'. 1'',2$  gives  $1^h. 22'. 58'',6$  the equation; and thus we always proceed for single arguments, making proportion for the intermediate numbers of the argument. In Table V. with Argument  $A=34807$  at the Head, and  $B=6170$  on the Side, take out the equation thus: The two numbers nearest\* to 34807 and 6170 are 36000 and 6000, against which stands the equation  $1'',5$ ; now for a variation 3000 of Argument  $A$ , there is no variation of the equation; if there had, we should have said,  $3000 : 1193 (=36000-34807) ::$  the variation of the equation : the variation required, which added to or subtracted from  $1'',5$ , according as the equation increases or decreases, gives the equation for  $A$  corresponding to the Argument  $B=6000$ . Now for a variation 500 of  $B$ , the variation of the equation is  $0'',7$ ; hence,  $500 : 170 (=6170-6000) :: 0'',7 : 0'',2$ , which (as the equation is decreasing) subtracted from  $1'',5$  leaves  $1'',3$  the equation required. And thus we proceed in all other cases, where we have thus to enter with two arguments; always beginning with the two arguments in the Table *nearest* to the two given arguments. With the Arguments  $B=6170$ , and  $S=8370$ , enter Table VI. and proceeding as in the last case, the argument is found to be  $5'',6$ . With the Argument  $B=6170$ , enter Table VII. and the equation is found to be  $2'. 32'',1$ . With the Equation  $C=4099$ , enter Table XII. and the equation is found to be  $6'. 41'',7$ . With the Equation  $F=999$ , enter Table XIII. and the equation is

\* In all cases where you enter with two arguments, one at the Head and the other at the Side, take the two arguments in the Table the *nearest* to the two given arguments, and take out the corresponding equation ( $E$ ); then make two separate proportions to find the changes of the equation ( $E$ ), corresponding to the difference between the two arguments first taken in the Tables and the respective given arguments, and in each case, according as the equation is increasing or decreasing in going from the arguments first taken in the Tables, to the given arguments, you must add or subtract the changes of the equation ( $E$ ) found from the proportions, to or from ( $E$ ), and you have the true equation corresponding to the two given arguments. The Example here given will make this clear.



is found to be  $11'',2$ . With the Argument  $G=404$ , enter Table XIII. and the equation is found to be  $1'',6$ . With the Argument  $H=6271$ , enter Table XIV. and take out the reduction  $0'',0$ . Add up the First Column, and the sum is  $2^d. 9^h. 12'. 50'',8$  the mean time of the middle. With the Argument  $H=6271$ , enter Table XV. and take out the semi-duration  $+ 1^h. 5'. 25'',6$ ; take out also the Argument  $N=91$ . With the Arguments  $C=4099$ , and  $N=91$ , take out the correction  $11'',3$ , and the sum  $1^h. 5'. 36'',9$  is the correct semi-duration, which subtracted from and added to  $2^d. 9^h. 12' 50'',8$  give  $2^d. 8^h. 7'. 13'',9$  the mean time of immersion, and  $2^d. 10^h. 18'. 27'',7$  the mean time of emersion. As  $B$  is greater than 5000, the *emersion* is visible. The sum of the First Column is  $2^d. 10^h. 18'. 27'',6$  the mean time of the emersion.

*To compute an ECLIPSE of the SECOND SATELLITE.*

In Table XVII. take out the epoch of the mean conjunction for the given year, together with the Arguments  $A, S, B, C, D, E, F, G, H, I, K, L$ ; and place them in an horizontal line.

In Table XVIII. take out the revolutions for the given day of the month, or the nearest day preceding the given day, together with the arguments; and place them under the first line.

Add up the Arguments  $A$  and  $S$ , rejecting 36000 in  $A$ , and 10000 in  $S$ , if necessary.

With the Argument  $A$  thus found, enter Table I. and take out the corrections of  $B, H$ , and  $C$ ; the correction of  $H$  is also the correction of  $I, K, L$ ; and one tenth of this correction is the correction of  $D$  and  $E^*$ .

With

\* The latitude of the Second Satellite is composed of four terms, depending on the Arguments  $H, I, K, L$ , which express the distance of the Satellite from the points where these terms becomes  $= 0$ . The reduction consists of several terms, of which the two principal only are here employed, having the Arguments  $H$  and  $H + L$ .

The



With the Argument  $S$  above found, enter Table II. and take out another correction of  $B$ .

Add together each of the Arguments, rejecting 10000 in  $B, C, H, I, K, L$ , and 1000 in  $D, E, F, G$ , or any multiples thereof, if necessary.

In Table III. take out the decimal part of a year, answering to the given day of the month.

In Table XIX. take out the equation answering to the given year and day of the year, as last found.

With the Argument  $A$ , enter Table XX; and take out the equation.

With the Arguments  $B, A$ , enter Table V; and take out the equation.

With the Arguments  $B, S$ , enter Table VI; and take out the equation.

With the Argument  $B$ , enter Table VII; and take out the equation.

With the Argument  $C$ , enter Table XXI; and take out the equation.

With the Argument  $D$ , enter Table XXII; and take out the equation.

With the Argument  $E$ , enter Table XXII; and take out the equation.

With the Argument  $F$ , enter Table XXII; and take out the equation.

With the Argument  $G$ , enter Table XXII; and take out the equation.

With the Argument  $H$ , enter Table XXIII; and take out one part of the reduction.

With the Argument  $H + L$ , enter Table XXIV; and take out the other part of the reduction.

Take

The numbers corresponding to the Arguments  $H, I, K, L$ , in Table XXIV. are functions of the different terms of the latitude, of the semi-diameter of the shadow, and of the flatness of Jupiter. These numbers are all augmented by a constant quantity, in order to render them all additive. When  $M$  is greater than unity, the latitude is north; if less, it is south.

The Argument  $C$  is the difference of the longitudes of the Second and Third Satellites. The Argument  $D$  is the distance of the Second Satellite from the apside of the Third. The Argument  $E$  is the distance of the Second Satellite from the apside of the Fourth. The Equations  $D$  and  $E$  are two equations of the center. The Arguments  $F$  and  $G$  are the same as those of the first Satellite.



Take the sum of the quantities in the First Column, and you have the mean time of the middle of the eclipse.

With the Arguments  $H, I, K, L$ , enter Table XXIV, and take out the corresponding numbers, the sum  $M$  of which is the argument of the semi-duration.

With the Argument  $M$ , enter Table XXV, and take out the semi-duration. Take out also the number  $N$ .

With the Arguments  $C, N$ , enter Table XXVI; and take out the correction of the semi-duration, and add it to the semi-duration, and you get the correct semi-duration; which subtracted from and added to the mean time of the middle, give the mean times of the immersion and emersion. And if to these you apply the equation of time, taken from the Nautical Almanack, you have the *apparent* times of the immersion and emersion.

EXAMPLE. To calculate the Time of the Emersion of the Second Satellite, April 12, 1791.

|                           |                           | $A$   | $S$  | $B$  | $C$  | $D$ | $E$ | $F$ | $G$ | $H$  | $I$  | $K$  | $L$  |
|---------------------------|---------------------------|-------|------|------|------|-----|-----|-----|-----|------|------|------|------|
| Epoch 1791 . . . . .      | $d^h m^s$ 2. 21. 20. 49,3 | 33816 | 5098 | 2935 | 0143 | 777 | 371 | 752 | 157 | 5813 | 7380 | 2802 | 5393 |
| April . . . . .           | 9. 12. 21. 4,4            | 827   | 2724 | 2495 | 1137 | 21  | 22  | 206 | 205 | 230  | 235  | 250  | 321  |
| 1791,28 . . . . .         | 7. 40,4                   | 34643 | 7822 | 119  | 94   | 19  | 19  |     |     | 187  | 187  | 187  | 187  |
| Equation $A$ . . . . .    | 2. 12. 4,8                |       |      | 105  |      |     |     |     |     |      |      |      |      |
| Equation $B, A$ . . . . . | 2,1                       |       |      | 5654 | 1374 | 817 | 412 | 958 | 362 | 6230 | 7802 | 3239 | 5901 |
| Equation $B, S$ . . . . . | 7,0                       |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $B$ . . . . .    | 50,4                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $C$ . . . . .    | 22,1                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $D$ . . . . .    | 2,5                       |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $E$ . . . . .    | 23,6                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $F$ . . . . .    | 34,7                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Equation $G$ . . . . .    | 42,3                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Reduction $H$ . . . . .   | 0,1                       |       |      |      |      |     |     |     |     |      |      |      |      |
| Reduction $H+L$ . . . . . | 28,1                      |       |      |      |      |     |     |     |     |      |      |      |      |
| Mean Time of Middle       | 12. 12. 5. 10,8           |       |      |      |      |     |     |     |     |      |      |      |      |
| Semi-duration . . . . .   | 1. 21. 5,2                |       |      |      |      |     |     |     |     |      |      |      |      |
| Mean Time of Immer.       | 12. 10. 44. 5,6           |       |      |      |      |     |     |     |     |      |      |      |      |
| Mean Time of Emers.       | 12. 13. 26. 16,0          |       |      |      |      |     |     |     |     |      |      |      |      |

|                              |                     |         |
|------------------------------|---------------------|---------|
| Semi-duration, $M$ gives     | $h^m s$ 1. 20. 10,6 | $N=815$ |
| Correction, $C, N$ . . . . . | 54,6                |         |
| Cor. Semi-duration . . . . . | 1. 21. 5,2          |         |

|                                 |
|---------------------------------|
| $H=6230$                        |
| $H+L=2131$                      |
| Numbers.                        |
| Arg. $H$ gives . . . . . 0,5281 |
| Arg. $I$ . . . . . 26           |
| Arg. $K$ . . . . . 5            |
| Arg. $L$ . . . . . 0,1273       |
| Arg. $M$ . . . . . 0,6585       |

The



The arguments and equations are here taken out, exactly in the same manner as they were in the first Example; the methods of doing which we have there explained.

*To compute an ECLIPSE of the THIRD SATELLITE.*

In Table XXVII. take out the epoch of the mean conjunctions for the given year, together with the Arguments  $A, S, B, c, C, D, E, F, G, H, I, K, L$ ; and place them in an horizontal line.

In Table XXVIII. take out the revolutions for the given day of the month, or for the nearest day preceding the given day, together with the arguments, and place them under the first line.

Add up the Arguments  $A$  and  $S$ , rejecting 36000 in  $A$ , and 10000 in  $S$ , if necessary.

With the Argument  $A$  thus found, enter Table I. and take out the corrections of  $B, H, C$ ; the correction of  $H$  is also the correction of  $I, K, L$ ; the correction of  $c$  is  $\frac{1}{20}$  of the correction of  $H$ ; and the correction of  $C, D, E$  is  $\frac{1}{10}$  of the correction of  $H$ .

With the Argument  $S$  above found, enter Table II; and take out another correction of  $B$ .

Add up each of the Arguments, rejecting 10000 in  $B, H, I, K, L$ , and 1000 in  $c, C, D, E, F, G$ \*, or any multiples thereof, if necessary.

In Table III. take out the decimal part of a year, answering to the given day of the month.

In Table XXIX. take out the equation answering to the given year and day of the year, as last found.

With

\* The Argument  $c$ , is the difference of the longitudes of the Third and Fourth Satellites. The Argument  $C$ , is the difference of longitudes of the Second and Third Satellites. The Argument  $D$ , is the mean anomaly of the Third Satellite; and the equation, the equation of the center. The Argument  $E$ , is the distance of the Third Satellite from the apside of the Fourth; and the equation  $E$  is a second equation of the center. The Arguments  $F, G$ , differ from those in the Tables of the First and Second Satellites, by a semi-circle nearly.



With the Argument  $A$ , enter Table XXX; and take out the equation.

With the Arguments  $B, A$ , enter Table V; and take out the equation.

With the Arguments  $B, S$ , enter Table VI; and take out the equation.

With the Argument  $B$ , enter Table VII; and take out the equation.

With the Argument  $c$ , enter Table XXXI; and take out the equation.

With the Argument  $C$ , enter Table XXXII; and take out the equation.

With the Argument  $D$ , enter Table XXXIII; and take out the equation.

With the Argument  $E$ , enter Table XXXIII; and take out the equation.

With the Argument  $F$ , enter Table XXXIII; and take out the equation.

With the Argument  $G$ , enter Table XXXIII; and take out the equation.

With the Argument  $H$ , enter Table XXXIV; and take out one part of the reduction.

With the Argument  $H+K$ , enter Table XXXV; and take out the other part of the reduction.

Add up the First Column, and you have the mean time of the middle of the eclipse.

With the Arguments  $H, I, K, L$ , enter Table XXXVI; and take out the corresponding numbers, the sum  $M$  of which is the argument of the semi-duration.

With the Arguments  $C, D, E$ , enter Table XXXVIII; and take out the three corresponding equations, and add them together, regard being had to the signs, and call the sum  $x$ .

With the Argument  $M$ , enter Table XXXVII; and take out the semi-duration, and the number  $N$ .

To the semi-duration thus found, apply the product  $xN$ , and you have the corrected semi-duration; which added to and subtracted from the time of the middle, give the mean times of the emersion and immersion; and if to these you apply the equation of time, taken from the Nautical Almanack, you have the *apparent* times.

EXAMPLE.



EXAMPLE. To calculate an Eclipse of the Third Satellite, for November 13, 1787.

|                         |                         | A                                       | S    | B    | c   | C   | D                      | E   | F   | G   | H    | I                         | K    | L    |
|-------------------------|-------------------------|-----------------------------------------|------|------|-----|-----|------------------------|-----|-----|-----|------|---------------------------|------|------|
| Epoch for 1787 . . .    | <sup>d</sup> 1. 8. 49,6 | 21671                                   | 5075 | 6284 | 351 | 688 | 470                    | 042 | 227 | 639 | 2441 | 3933                      | 9134 | 0684 |
| November . . . . .      | 11. 7. 42. 16,4         | 2620                                    | 8633 | 7905 | 179 | 721 | 66                     | 71  | 654 | 649 | 728  | 744                       | 791  | 1016 |
| 1787,87 . . . . .       | . . . . 16. 50,6        | 24291                                   | 3708 | 13   | 15  | 29  | 29                     | 29  |     |     | 293  | 293                       | 293  | 293  |
| Equation A . . . . .    | . . . . 5. 36. 13,1     |                                         |      | 13   |     |     |                        |     |     |     |      |                           |      |      |
| Equation B, A . . . . . | . . . . . 1,2           |                                         |      | 4215 | 545 | 438 | 565                    | 142 | 881 | 288 | 3462 | 4970                      | 218  | 1993 |
| Equation B, S . . . . . | . . . . . 12,9          |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation B . . . . .    | . . . . . 1. 11,5       |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation c . . . . .    | . . . . . 19,2          |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation C . . . . .    | . . . . . 2. 55,2       |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation D . . . . .    | . . . . . 2. 39,5       |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation E . . . . .    | . . . . . 4. 21,5       |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation F . . . . .    | . . . . . 4,8           |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Equation G . . . . .    | . . . . . 17,3          |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Reduction H . . . . .   | . . . . . 2. 52,2       |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Reduction H+K . . . . . | . . . . . 20,8          |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Mean Time of Middle     | 13. 14. 59. 25,8        |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Semi-duration . . . . . | 1. 15. 18,6             |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Mean Time of Immer.     | 13. 13. 44. 7,2         |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
| Mean Time of Emers.     | 13. 16. 14. 44,4        |                                         |      |      |     |     |                        |     |     |     |      |                           |      |      |
|                         |                         | Semi-durat. M. <sup>h</sup> 1. 15. 18,5 |      |      |     |     | Arg. C . . Equat. -4,2 |     |     |     |      | Arg. H gives . . 1,63906* |      |      |
|                         |                         | Cor. = xN . . . + 0,1                   |      |      |     |     | Arg. D . Equat. -7,9   |     |     |     |      | Arg. I — . . 1090         |      |      |
|                         |                         | Semi-durat. cor. 1. 15. 18,6            |      |      |     |     | Arg. E . . Equat. +3,0 |     |     |     |      | Arg. K — . . 5030         |      |      |
|                         |                         |                                         |      |      |     |     | x = . . . . . -9,1     |     |     |     |      | Arg. L — . . 1012         |      |      |
|                         |                         |                                         |      |      |     |     | N = . . . . . -0,014   |     |     |     |      | Arg. M — . . 1,71038      |      |      |
|                         |                         |                                         |      |      |     |     | xN = . . . . . +0,1264 |     |     |     |      |                           |      |      |

The Arguments and Equations are here taken, out exactly in the same manner as they were in the First Example.

To

\* In finding this number, we took second differences, as the first differences have a considerable variation (Art. 1242); the operation is thus: Take from the Tables, three successive values of  $H$ , beginning at that next greater than 1,63906,

$$\begin{array}{r} 1,65771, \quad 1,62709, \quad 1,55767 \\ - ,03062, \quad - ,03339 \\ - ,00277 \end{array}$$

Now calling 1 the intervals of the values of  $H$ ,  $x = ,62$ ; hence, the number corresponding to  $H = 3462$ , is  $1,65771 - ,03062 \times ,62 - ,00277 \times \frac{,62 \times - ,38}{2} = 1,65771 - ,01898 + ,00033 = 1,63906$ . And in all other cases, where great accuracy is required in similar calculations, and the first differences have a considerable variation, we must proceed in the same manner.



*To compute an ECLIPSE of the FOURTH SATELLITE.*

In Table XXXIX. take out the epoch of the mean conjunctions for the given year, together with the Arguments  $A, S, B, C^*, D, E, H, I, K$ ; and place them in an horizontal line.

In Table XL. take out the revolutions for the given day of the month, or for the nearest day preceding the given day, together with the arguments, and place them under the first line.

Add up the Arguments  $A$  and  $S$ , rejecting 36000 in  $A$ , and 10000 in  $S$ , if necessary.

With the Argument  $A$  thus found, enter Table I; and take out the corrections  $B, H$ ; the correction of  $H$  is also the correction of  $C, I, K$ ; the correction of  $D$  is  $\frac{1}{10}$  of the correction of  $H$ ; and the correction of  $E$  is the correction of  $D$  increased by  $\frac{3}{10}$  of it's correction.

With the Argument  $S$  above found, enter Table II. and take out another correction of  $B$ .

Add up each of the Arguments, rejecting 10000 in  $B, C, H, I, K$ , and 1000, in  $D, E$ , or any multiples thereof, if necessary.

In Table III. take out the decimal part of a year, answering to the given day of the month.

In Table XLI. take out the equation answering to the given year and day of the year, as last found.

With the Argument  $A$ , enter Table XLII; and take out the equation.

With the Arguments  $B, A$ , enter Table V; and take out the equation.

With the Arguments  $B, S$ , enter Table VI; and take out the equation.

With the Argument  $B$ , enter Table VII; and take out the equation.

With

\* The Argument  $C$ , is the mean anomaly of the Fourth Satellite. The Argument  $D$ , is the distance of the Fourth Satellite from the apside of the Third; and thus  $D$  becomes a second equation of the center. The Argument  $E$  is the same as the Argument  $c$  of the Third Satellite. When  $M$  exceeds 2, it shows that the latitude is north; otherwise, it is south.



With the Argument  $C$ , enter Table XLIII; and take out the equation.

With the Argument  $D$ , enter Table XLIV; and take out the equation.

With the Argument  $E$ , enter Table XLV; and take out the equation.

With the Argument  $H$ , enter Table XLVI; and take out the equation.

With the Argument  $I$ , enter Table XLVI; and take out the first and second parts of the reduction.

With the Argument  $H + I$ , enter Table XLVII; and take out the third part of the reduction.

With the Argument  $H + K$ , enter Table XLVII; and take out the fourth part of the reduction.

Add up the First Column, and you have the *mean* time of the middle of the eclipse.

With the Arguments  $H$ ,  $I$ ,  $K$ , enter Table XLVIII; and take out the corresponding numbers, the sum  $M$  of which is the argument of the semi-duration.

With the Argument  $M$ , enter Table XLIX; and take out the semi-duration, and the number  $N$ .

With the Argument  $C$ , enter Table L; and take out the equation, which will be  $+$  or  $-$ , according as the argument is  $+$  or  $-$ , and multiply it by  $N$ ; and the product, regard being had to the signs, applied to the semi-duration above found, gives the semi-duration corrected; which added to and subtracted from the time of the middle, give the *mean* times of the emersion and immersion; and if to these you apply the equation of time, taken from the Nautical Almanack, you have the *apparent* times.

But near the limits, that is, when  $M$  is greater than 2,98 or less than 1,02, the above method of finding the semi-duration is not sufficiently exact, and in such cases, you must use the following method.

Let  $V = 3 - M$  in the first case, and  $= M - 1$  in the second; and take in Table L. the number  $X$ , and make  $Q = X + 2V - V^2$ ; and with  $Q$ , enter Table LI. and you have the semi-duration, without an error of more than



than half a second. But if you wish to correct this error, let  $D$  = the semi-duration found by the number  $Q$ ; and the true semi-duration =  $D - XD$ . The number  $X$  has a different sign from that of it's Argument.

When  $Q$  is positive, there will be an eclipse; but when  $Q$  is negative, there will be no eclipse.

EXAMPLE. To calculate an Eclipse of the Fourth Satellite for January 21, 1791.

|                                        |                                                                     | <i>A</i> | <i>S</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> | <i>H</i>          | <i>I</i> | <i>K</i> |  |
|----------------------------------------|---------------------------------------------------------------------|----------|----------|----------|----------|----------|----------|-------------------|----------|----------|--|
| Epoch for 1791 . . .                   | <sup>d</sup> 4. <sup>h</sup> 10. <sup>'</sup> 9. <sup>''</sup> 38,2 | 33831    | 5150     | 3000     | 3747     | 777      | 213      | 5817              | 7385     | 2806     |  |
| January . . . . .                      | 16. 18. 5. 7,0                                                      | 139      | 459      | 420      | 38       | 4        | 338      | 39                | 40       | 42       |  |
| 1791, 05 . . . . .                     | . . . . . 36. 1,8                                                   | 33970    | 5609     | 102      | 204      | 20       | 26       | 204               | 204      | 204      |  |
| Equation <i>A</i> . . . . .            | . . . . . 8. 47. 33,1                                               |          |          | 73       |          |          |          |                   |          |          |  |
| Equation <i>B</i> , <i>A</i> . . . . . | . . . . . 0,9                                                       |          |          | 3595     | 3989     | 801      | 577      | 6060              | 7629     | 3052     |  |
| Equation <i>B</i> , <i>S</i> . . . . . | . . . . . 12,3                                                      |          |          |          |          |          |          |                   |          |          |  |
| Equation <i>B</i> . . . . .            | . . . . . 3. 31,9                                                   |          |          |          |          |          |          |                   |          |          |  |
| Equation <i>C</i> . . . . .            | . . . 1. 30. 28,8                                                   |          |          |          |          |          |          |                   |          |          |  |
| Equation <i>D</i> . . . . .            | . . . . . 3,6                                                       |          |          |          |          |          |          |                   |          |          |  |
| Equation <i>E</i> . . . . .            | . . . . . 11,5                                                      |          |          |          |          |          |          |                   |          |          |  |
| Reduction <i>H</i> . . . . .           | . . . . . 4,9                                                       |          |          |          |          |          |          |                   |          |          |  |
| Reduction <i>I</i> . . . . .           | . . . . . 1,7                                                       |          |          |          |          |          |          |                   |          |          |  |
| Reduction <i>H+I</i> . . . . .         | . . . . . 53,7                                                      |          |          |          |          |          |          |                   |          |          |  |
| Reduction <i>H+K</i> . . . . .         | . . . . . 7,0                                                       |          |          |          |          |          |          |                   |          |          |  |
| Mean Time of Middle                    | 21. 15. 13. 56,4                                                    |          |          |          |          |          |          |                   |          |          |  |
| Semi-duration . . .                    | 1. 43. 4,8                                                          |          |          |          |          |          |          |                   |          |          |  |
| Mean Time of Immers.                   | 21. 13. 30. 51,6                                                    |          |          |          |          |          |          |                   |          |          |  |
| Mean Time of Emers.                    | 21. 16. 57. 1,2                                                     |          |          |          |          |          |          |                   |          |          |  |
|                                        |                                                                     |          |          |          |          |          |          | <i>H</i> = 6060   |          |          |  |
|                                        |                                                                     |          |          |          |          |          |          | <i>H+I</i> = 3689 |          |          |  |
|                                        |                                                                     |          |          |          |          |          |          | 9112 = <i>H+K</i> |          |          |  |
|                                        |                                                                     |          |          |          |          |          |          |                   |          |          |  |
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|                                        |                                                                     |          |          |          |          |          |          |                   |          |          |  |



*An Exemplification of the Cases near the Limits.*

Ex. I. Let  $M=2,995$ , or  $1,005$ , for in both cases  $V$  is the same, and  $C=5000$ .

Here  $V=3-M=M-1=0,005$ ; and by entering with the Argument  $C=5000$  in Table L, we find  $X=+0,01482$ , the argument being  $-$ ; hence,

$$\begin{array}{rcl} X & = & + 0,01482 \\ 2V & = & 0,01 \\ -V^2 & = & - 0,000025 \\ \hline Q & = & + 0,024795 \end{array}$$

With this value of  $Q$ , enter Table LI; and you get the

$$\begin{array}{rcl} \text{Semi-duration} & . & . & . & . & D = 22'. 33'' \\ & & & & - XD = & - 20 \\ \hline \text{Correct Semi-duration} & . & . & . & & = 22. 13 \end{array}$$

Ex. II. Let  $M=2,998$  or  $1,002$ ,  $V$  being the same in each, and  $C=2400$ .

Here  $V=3-M=M-1=-0,002$ ; also,  $X=-0,00093$ , the Argument  $C=2400$  being  $+$ ; hence,

$$\begin{array}{rcl} X & = & - 0,00093 \\ 2V & = & + 0,004 \\ -V^2 & = & - 0,000004 \\ \hline Q & = & + 0,003066 \end{array}$$

With this value of  $Q$ , enter Table LI; and you get the

$$\begin{array}{rcl} \text{Semi-duration} & . & . & . & . & D = 7'. 55'' \\ & & & & - XD = & + 0,4 \\ \hline \text{Correct Semi-duration} & . & . & . & & = 7. 55,4 \end{array}$$

If  $C$  had been 100, then  $X$  would have been  $= -0,01479$ , and  $Q = -0,010794$  a negative quantity, which shows that there would be no eclipse.

By



By Table IV. the equation of time may be thus computed. The equation of time is here made to depend upon the mean anomaly of the Sun, or on Argument  $S$ , as the other quantities upon which the equation depends have relation to that, and may be allowed for by a secular variation. The equation is there computed for the year 1800; but as the apogee of the Sun, and the obliquity of the ecliptic vary, the equation computed for that year, must have an equation for any other year; and this variation is computed for 100 years, and therefore becomes a secular variation, which is put down in the Tables, and is to be applied *according* to it's sign, for any time *after* 1800, but with a *contrary* sign, for any time *before*. Enter with the Argument  $S$ , and take out the equation, and the secular variation; and to find the part of the secular variation corresponding to the given year, say, 100 years : the years between the given time and 1800 :: the secular variation taken from the Table : the secular variation required, which applied to the equation, gives the equation of time required. But sometimes we must use second differences, or we may be subject to an error of  $1''.25$ . Now in order to render all the equations additive, there is subtracted about  $44\frac{1}{2}'$  from the epoch of the First Satellite; about  $1^h.30'$  from that of the Second; about  $2^h.56\frac{1}{2}'$  from that of the Third; and about  $7^h.27'$  from that of the Fourth, being about the sum of the negative maxima of the equations of each respectively, a few seconds being here omitted, as of no consequence. Now the values of the Arguments are not diminished by quantities corresponding to these times; therefore (Ex. 3), our value of  $S$ , 3708, answers to  $13^d.8^h.51'.6''$  (the sum of the two first quantities)  $+ 2^h.56'.30'' = 13^d.11^h.47'.36''$ . But we want the equation of time for the times of immersion and emersion; therefore we must find the value of  $S$  corresponding to those times; to do which, we must take the differences between the time for which  $S$  is already computed, and the times of immersion and emersion, with which enter the Column Hours, and against it you have the corresponding change of  $S$ , which added to the above value of  $S$ , give the values of



of  $S$  corresponding to the times of immersion and emersion, to which compute the equations of time, as before explained. Or if you compute the equation only for the immersion, you may find how much it varies corresponding to the variation of  $S$  between the immersion and emersion, by observing in Table IV. what is the variation for 100 variation of  $S$ . To go on with the above example: The difference between  $13^d. 11^h. 47'. 36''$  and  $13^d. 13^h. 44'. 7''$  is  $1^h. 56'. 31''$ , or nearly 2 hours, and the corresponding change of  $S$  is 2; therefore the value of  $S$  corresponding to the time of immersion, is 3710. And to find the equation of time corresponding to this value of  $S$ , we have in Table IV, the equation  $15'. 25'', 5$  for 3700; hence,  $100 : 10 :: 39'', 3 : 3'', 93$ , which taken from  $15'. 25'', 5$  leaves  $15'. 21'', 6$ . Now for 3700 the secular variation is  $-8'', 3$ ; hence,  $100 : 10 :: 4'', 6 : 0'', 46$ , or  $0'', 5$ , which added to  $-8'', 3$  gives  $-8'', 8$  the variation for 100 years; hence,  $100 : 1800-1787, 87 (12, 13) :: -8'', 8 : -1''$  which applied to  $15'. 21'', 6$  with the contrary sign  $+$ , gives  $15'. 22'', 6$  the equation of time at the immersion. Now instead of proceeding in the same manner to find what is the equation at the emersion, it may be done thus: Find the change of the equation corresponding to a change of 1 in  $S$ . Here a change of 100 in  $S$  produces a change of  $39'', 3$  in the equation (for a change in the secular variation is insensible); hence,  $100 : 1 :: 39'', 3 : 0'', 393$ , or  $0'', 4$  the change of equation corresponding to a change 1 of  $S$ . Now the interval of the times of immersion and emersion is  $2^h. 31'$ , and that (by the annexed Table) causes a change of 2,5 of  $S$ ; hence,  $1 : 2,5 :: 0'', 4 : 1''$  the change of the equation of time in the interval between the immersion and emersion; hence, (as the equation is decreasing) the equation of time at the emersion is  $15'. 21'', 6$ . And in this manner we proceed in all other cases; adding to the sum of the two first lines, the quantity by which the epoch was

| Hours. | Change of $S$ . |
|--------|-----------------|
| 1      | 1               |
| 2      | 2               |
| 3      | 3               |
| 4      | 5               |
| 5      | 6               |
| 6      | 7               |
| 7      | 8               |
| 8      | 9               |
| 9      | 10              |
| 10     | 11              |
| 11     | 13              |
| 12     | 14              |



decreased, and then taking the difference between that time and the time of immersion or emersion, and finding the corresponding variation of  $S$ , and thence the equation of time at the time required.

But after all, this method does not give the equation of time accurately. For an error of 1 part of  $S$  may cause an error of  $1''$ ; and we cannot depend even upon this accuracy for the value of  $S$ , as only three terms of the expression for  $S$  are used in the computation, and the omission of the other terms may cause an error of  $1\frac{1}{2}''$ . Both for expedition and accuracy we therefore advise the Computer to use the equation of time taken from the Nautical Almanack, making proportion for the interval from noon. Thus, in the last Example, if it were required to find the equation of time at the immersion  $21^d. 13^h. 30'. 51'',6$  by the Nautical Almanack, the equation of time at apparent noon on the  $21^{st}$ . is  $11'. 50'',8$ , and the increase in 24 hours is  $16''$ . Now the equation of time is additive to the apparent time to give the mean time; therefore to apparent noon the corresponding mean time is  $0^h. 11'. 50'',8$ , and the mean time of immersion is  $13^h. 30'. 51'',6$  the difference of which times is  $13^h. 19'$ , omitting the seconds; hence,  $24^h : 13^h. 19' :: 16'' : 8'',8$ , which added to  $11'. 50'',8$  gives  $11'. 59'',6$  the equation of time at the immersion, and subtracted from  $13^h. 30'. 51'',6$  gives  $13^h. 18'. 52''$  the *apparent* time of immersion. And thus we may proceed in all cases.



TABLES OF THE SUN.



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TABLES

TABLE



# TABLES OF THE SUN.

## TABLE I.

EPOCHS of the *Mean Longitudes* of the Sun, and of his *Perigee*, with the *Arguments* which govern the *Inequalities*.

The Epochs are calculated for *January*, at Noon, Mean Time.

| YEARS. |    | Mean Longitude<br>of the Sun. |     |     |      | Longitude of<br>Sun's Perigee. |    |     |    | M   | A   | B   | C   | D   | E   | F   | N   |
|--------|----|-------------------------------|-----|-----|------|--------------------------------|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|        |    | S.                            | D.  | M.  | S.   | S.                             | D. | M.  | S. |     |     |     |     |     |     |     |     |
| 1750   | B. | 9.                            | 11. | 0.  | 11,5 | 9.                             | 8. | 37. | 28 | 583 | 757 | 280 | 131 | 61  | 10  | 643 | 221 |
| 1751   |    | 9.                            | 10. | 45. | 51,8 | 9.                             | 8. | 38. | 30 | 830 | 117 | 280 | 755 | 592 | 95  | 677 | 275 |
| 1752   |    | 9.                            | 10. | 31. | 32,2 | 9.                             | 8. | 39. | 31 | 076 | 477 | 279 | 380 | 124 | 179 | 711 | 329 |
| 1753   |    | 9.                            | 11. | 16. | 20,9 | 9.                             | 8. | 40. | 33 | 359 | 871 | 281 | 8   | 657 | 263 | 745 | 383 |
| 1754   |    | 9.                            | 11. | 2.  | 1,3  | 9.                             | 8. | 41. | 35 | 605 | 231 | 280 | 633 | 188 | 348 | 779 | 436 |
| 1755   |    | 9.                            | 10. | 47. | 41,6 | 9.                             | 8. | 42. | 37 | 852 | 591 | 280 | 257 | 719 | 432 | 813 | 490 |
| 1756   | B. | 9.                            | 10. | 33. | 22,0 | 9.                             | 8. | 43. | 39 | 098 | 951 | 279 | 882 | 251 | 516 | 847 | 544 |
| 1757   |    | 9.                            | 11. | 18. | 10,7 | 9.                             | 8. | 44. | 41 | 381 | 345 | 281 | 511 | 783 | 601 | 881 | 597 |
| 1758   |    | 9.                            | 11. | 3.  | 51,1 | 9.                             | 8. | 45. | 43 | 627 | 705 | 281 | 135 | 315 | 685 | 915 | 651 |
| 1759   |    | 9.                            | 10. | 49. | 31,5 | 9.                             | 8. | 46. | 45 | 874 | 66  | 280 | 759 | 846 | 769 | 949 | 705 |
| 1760   |    | 9.                            | 10. | 35. | 11,8 | 9.                             | 8. | 47. | 47 | 121 | 425 | 279 | 384 | 377 | 854 | 983 | 759 |
| 1761   |    | 9.                            | 11. | 20. | 0,5  | 9.                             | 8. | 48. | 49 | 403 | 820 | 281 | 13  | 910 | 938 | 17  | 812 |
| 1762   | B. | 9.                            | 11. | 5.  | 40,9 | 9.                             | 8. | 49. | 51 | 649 | 180 | 280 | 637 | 442 | 22  | 51  | 866 |
| 1763   |    | 9.                            | 10. | 51. | 21,2 | 9.                             | 8. | 50. | 52 | 896 | 540 | 280 | 262 | 973 | 107 | 85  | 920 |
| 1764   |    | 9.                            | 10. | 37. | 1,6  | 9.                             | 8. | 51. | 54 | 143 | 900 | 279 | 886 | 503 | 191 | 119 | 974 |
| 1765   |    | 9.                            | 11. | 21. | 50,3 | 9.                             | 8. | 52. | 56 | 425 | 294 | 281 | 515 | 37  | 275 | 153 | 27  |
| 1766   |    | 9.                            | 11. | 7.  | 30,7 | 9.                             | 8. | 53. | 58 | 672 | 654 | 280 | 139 | 568 | 360 | 187 | 81  |
| 1767   |    | 9.                            | 10. | 53. | 11,0 | 9.                             | 8. | 55. | 0  | 918 | 14  | 279 | 764 | 100 | 444 | 220 | 135 |
| 1768   | B. | 9.                            | 10. | 38. | 51,4 | 9.                             | 8. | 56. | 2  | 165 | 374 | 279 | 388 | 631 | 528 | 254 | 188 |
| 1769   |    | 9.                            | 11. | 23. | 40,1 | 9.                             | 8. | 57. | 4  | 447 | 768 | 281 | 17  | 164 | 613 | 288 | 242 |
| 1770   |    | 9.                            | 11. | 9.  | 20,5 | 9.                             | 8. | 58. | 6  | 694 | 128 | 281 | 641 | 695 | 697 | 322 | 296 |
| 1771   |    | 9.                            | 10. | 55. | 0,8  | 9.                             | 8. | 59. | 8  | 940 | 488 | 280 | 266 | 227 | 781 | 356 | 350 |
| 1772   |    | 9.                            | 10. | 40. | 41,2 | 9.                             | 9. | 0.  | 10 | 187 | 848 | 279 | 890 | 757 | 866 | 390 | 403 |
| 1773   |    | 9.                            | 11. | 25. | 29,9 | 9.                             | 9. | 1.  | 12 | 469 | 242 | 281 | 519 | 290 | 950 | 424 | 457 |
| 1774   | B. | 9.                            | 11. | 11. | 10,3 | 9.                             | 9. | 2.  | 13 | 716 | 602 | 280 | 144 | 822 | 35  | 458 | 511 |
| 1775   |    | 9.                            | 10. | 56. | 50,6 | 9.                             | 9. | 3.  | 15 | 962 | 962 | 280 | 768 | 354 | 119 | 492 | 564 |
| 1776   |    | 9.                            | 10. | 42. | 31,0 | 9.                             | 9. | 4.  | 17 | 209 | 322 | 279 | 392 | 885 | 203 | 526 | 618 |
| 1777   |    | 9.                            | 11. | 27. | 19,7 | 9.                             | 9. | 5.  | 19 | 491 | 716 | 281 | 21  | 418 | 288 | 560 | 672 |
| 1778   |    | 9.                            | 11. | 13. | 0,1  | 9.                             | 9. | 6.  | 21 | 738 | 76  | 280 | 646 | 949 | 372 | 594 | 726 |
| 1779   |    | 9.                            | 10. | 58. | 40,4 | 9.                             | 9. | 7.  | 23 | 984 | 436 | 280 | 270 | 480 | 456 | 628 | 779 |
| 1780   | B. | 9.                            | 10. | 44. | 20,8 | 9.                             | 9. | 8.  | 25 | 231 | 796 | 279 | 895 | 12  | 541 | 662 | 833 |



TABLE I.

EPOCHS of the *Mean Longitudes* of the Sun, and of his *Perigee*, with the *Arguments* which govern the *Inequalities*.

| YEARS.  | Mean Longitude of the Sun. |     |     |      | Longitude of Sun's Perigee. |    |     |    | M   | A   | B   | C   | D   | E   | F   | N   |
|---------|----------------------------|-----|-----|------|-----------------------------|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|         | S.                         | D.  | M.  | S.   | S.                          | D. | M.  | S. |     |     |     |     |     |     |     |     |
| 1781    | 9.                         | 11. | 28. | 9,5  | 9.                          | 9. | 9.  | 27 | 513 | 190 | 282 | 523 | 545 | 625 | 696 | 887 |
| 1782    | 9.                         | 11. | 14. | 40,9 | 9.                          | 9. | 10. | 29 | 760 | 550 | 281 | 148 | 76  | 709 | 730 | 941 |
| 1783    | 9.                         | 11. | 0.  | 30,2 | 9.                          | 9. | 11. | 31 | 6   | 910 | 280 | 772 | 607 | 794 | 764 | 994 |
| 1784 B. | 9.                         | 10. | 46. | 10,6 | 9.                          | 9. | 12. | 33 | 253 | 270 | 280 | 397 | 139 | 878 | 798 | 48  |
| 1785    | 9.                         | 11. | 30. | 59,3 | 9.                          | 9. | 13. | 34 | 536 | 664 | 282 | 26  | 671 | 962 | 832 | 102 |
| 1786    | 9.                         | 11. | 16. | 39,7 | 9.                          | 9. | 14. | 36 | 782 | 24  | 281 | 650 | 203 | 47  | 866 | 155 |
| 1787    | 9.                         | 11. | 2.  | 20,0 | 9.                          | 9. | 15. | 38 | 28  | 384 | 281 | 274 | 734 | 131 | 900 | 209 |
| 1788 B. | 9.                         | 10. | 48. | 0,4  | 9.                          | 9. | 16. | 40 | 275 | 744 | 280 | 899 | 265 | 215 | 934 | 263 |
| 1789    | 9.                         | 11. | 32. | 49,1 | 9.                          | 9. | 17. | 42 | 558 | 138 | 282 | 528 | 798 | 300 | 968 | 317 |
| 1790    | 9.                         | 11. | 18. | 29,5 | 9.                          | 9. | 18. | 44 | 804 | 498 | 281 | 152 | 330 | 384 | 2   | 370 |
| 1791    | 9.                         | 11. | 4.  | 9,8  | 9.                          | 9. | 19. | 46 | 51  | 859 | 280 | 776 | 861 | 468 | 36  | 424 |
| 1792 B. | 9.                         | 10. | 49. | 50,2 | 9.                          | 9. | 20. | 48 | 297 | 218 | 280 | 401 | 392 | 53  | 70  | 478 |
| 1793    | 9.                         | 11. | 34. | 38,9 | 9.                          | 9. | 21. | 50 | 580 | 613 | 282 | 30  | 925 | 637 | 104 | 532 |
| 1794    | 9.                         | 11. | 20. | 19,3 | 9.                          | 9. | 22. | 52 | 826 | 973 | 281 | 654 | 456 | 721 | 138 | 585 |
| 1795    | 9.                         | 11. | 5.  | 59,6 | 9.                          | 9. | 23. | 54 | 73  | 333 | 280 | 279 | 988 | 806 | 172 | 639 |
| 1796 B. | 9.                         | 10. | 51. | 40,0 | 9.                          | 9. | 24. | 55 | 319 | 693 | 280 | 903 | 519 | 890 | 206 | 693 |
| 1797    | 9.                         | 11. | 36. | 28,7 | 9.                          | 9. | 25. | 57 | 601 | 87  | 282 | 532 | 52  | 974 | 240 | 747 |
| 1798    | 9.                         | 11. | 22. | 9,1  | 9.                          | 9. | 26. | 59 | 848 | 447 | 281 | 156 | 583 | 59  | 274 | 800 |
| 1799    | 9.                         | 11. | 7.  | 49,4 | 9.                          | 9. | 28. | 1  | 95  | 807 | 280 | 781 | 115 | 143 | 308 | 854 |
| 1800 C. | 9.                         | 10. | 53. | 29,8 | 9.                          | 9. | 29. | 3  | 341 | 167 | 280 | 405 | 646 | 227 | 342 | 908 |
| 1801    | 9.                         | 10. | 39. | 10,2 | 9.                          | 9. | 30. | 5  | 588 | 527 | 279 | 30  | 177 | 312 | 376 | 961 |
| 1802    | 9.                         | 10. | 24. | 50,6 | 9.                          | 9. | 31. | 7  | 834 | 887 | 279 | 654 | 709 | 396 | 410 | 15  |
| 1803    | 9.                         | 10. | 10. | 30,9 | 9.                          | 9. | 32. | 9  | 81  | 247 | 278 | 278 | 240 | 480 | 444 | 69  |
| 1804 B. | 9.                         | 9.  | 56. | 11,3 | 9.                          | 9. | 33. | 11 | 327 | 607 | 277 | 903 | 771 | 565 | 478 | 123 |
| 1805    | 9.                         | 10. | 41. | 0,0  | 9.                          | 9. | 34. | 13 | 610 | 1   | 279 | 532 | 304 | 649 | 512 | 176 |
| 1806    | 9.                         | 10. | 26. | 40,4 | 9.                          | 9. | 35. | 15 | 856 | 361 | 279 | 156 | 836 | 733 | 546 | 230 |
| 1807    | 9.                         | 10. | 12. | 20,7 | 9.                          | 9. | 36. | 17 | 103 | 721 | 278 | 781 | 367 | 818 | 580 | 284 |
| 1808 B. | 9.                         | 9.  | 58. | 1,1  | 9.                          | 9. | 37. | 18 | 349 | 81  | 277 | 405 | 898 | 902 | 614 | 337 |
| 1809    | 9.                         | 10. | 42. | 49,8 | 9.                          | 9. | 38. | 20 | 632 | 475 | 279 | 34  | 431 | 986 | 648 | 391 |
| 1810    | 9.                         | 10. | 28. | 30,2 | 9.                          | 9. | 39. | 22 | 878 | 835 | 279 | 658 | 963 | 71  | 682 | 445 |
| 1811    | 9.                         | 10. | 14. | 10,5 | 9.                          | 9. | 40. | 24 | 125 | 195 | 278 | 283 | 494 | 155 | 716 | 498 |
| 1812 B. | 9.                         | 9.  | 59. | 50,9 | 9.                          | 9. | 41. | 26 | 371 | 555 | 277 | 907 | 26  | 239 | 750 | 552 |
| 1813    | 9.                         | 10. | 44. | 39,6 | 9.                          | 9. | 42. | 28 | 654 | 949 | 279 | 536 | 559 | 324 | 784 | 606 |
| 1814    | 9.                         | 10. | 30. | 20,0 | 9.                          | 9. | 43. | 30 | 900 | 309 | 279 | 160 | 90  | 408 | 818 | 660 |
| 1815    | 9.                         | 10. | 16. | 0,3  | 9.                          | 9. | 44. | 32 | 147 | 669 | 278 | 785 | 621 | 492 | 852 | 713 |
| 1816 B. | 9.                         | 10. | 1.  | 40,7 | 9.                          | 9. | 45. | 34 | 394 | 29  | 277 | 409 | 153 | 577 | 886 | 767 |
| 1817    | 9.                         | 10. | 46. | 29,4 | 9.                          | 9. | 46. | 36 | 676 | 423 | 280 | 38  | 685 | 661 | 920 | 821 |
| 1818    | 9.                         | 10. | 32. | 9,8  | 9.                          | 9. | 47. | 38 | 922 | 783 | 279 | 663 | 217 | 745 | 954 | 875 |
| 1819    | 9.                         | 10. | 17. | 50,1 | 9.                          | 9. | 48. | 39 | 169 | 143 | 278 | 287 | 748 | 830 | 988 | 928 |
| 1820 B. | 9.                         | 10. | 3.  | 30,5 | 9.                          | 9. | 49. | 41 | 416 | 503 | 278 | 911 | 280 | 914 | 022 | 982 |



TABLE I.

EPOCHS of the *Mean Longitudes* of the Sun, and of his *Perigee*, with the *Arguments* which govern the *Inequalities*.

| YEARS. | Mean Longitude<br>of the Sun. |     |     |      | Longitude of<br>Sun's Perigee. |     |     |     | M   | A   | B   | C   | D   | E   | F   | N   |     |
|--------|-------------------------------|-----|-----|------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | S.                            | D.  | M.  | S.   | S.                             | D.  | M.  | S.  |     |     |     |     |     |     |     |     |     |
| 1821   | 9.                            | 10. | 48. | 19,2 | 9.                             | 9.  | 50. | 43  | 698 | 898 | 280 | 540 | 813 | 998 | 056 | 036 |     |
| 1822   | 9.                            | 10. | 33. | 59,6 | 9.                             | 9.  | 51. | 45  | 945 | 258 | 279 | 165 | 344 | 83  | 90  | 90  |     |
| 1823   | 9.                            | 10. | 19. | 39,9 | 9.                             | 9.  | 52. | 47  | 191 | 618 | 278 | 789 | 876 | 167 | 124 | 143 |     |
| 1824   | B.                            | 9.  | 10. | 5.   | 20,3                           | 9.  | 9.  | 53. | 49  | 438 | 978 | 278 | 414 | 407 | 252 | 158 | 197 |
| 1825   | 9.                            | 10. | 50. | 9,0  | 9.                             | 9.  | 54. | 51  | 720 | 372 | 280 | 43  | 940 | 336 | 192 | 251 |     |
| 1826   | 9.                            | 10. | 35. | 49,4 | 9.                             | 9.  | 55. | 52  | 967 | 732 | 279 | 667 | 471 | 420 | 226 | 304 |     |
| 1827   | 9.                            | 10. | 21. | 29,7 | 9.                             | 9.  | 56. | 54  | 213 | 92  | 278 | 291 | 3   | 505 | 260 | 358 |     |
| 1828   | B.                            | 9.  | 10. | 7.   | 10,1                           | 9.  | 9.  | 57. | 56  | 460 | 452 | 278 | 916 | 534 | 589 | 294 | 412 |
| 1829   | 9.                            | 10. | 51. | 58,8 | 9.                             | 9.  | 58. | 58  | 742 | 846 | 280 | 545 | 67  | 673 | 328 | 466 |     |
| 1830   | 9.                            | 10. | 37. | 39,2 | 9.                             | 10. | 0.  | 0   | 989 | 206 | 279 | 169 | 598 | 758 | 362 | 519 |     |
| 1831   | 9.                            | 10. | 23. | 19,5 | 9.                             | 10. | 1.  | 2   | 235 | 566 | 278 | 793 | 130 | 842 | 396 | 573 |     |
| 1832   | B.                            | 9.  | 10. | 8.   | 59,9                           | 9.  | 10. | 2.  | 4   | 482 | 926 | 278 | 418 | 661 | 926 | 430 | 627 |
| 1833   | 9.                            | 10. | 53. | 48,6 | 9.                             | 10. | 3.  | 6   | 764 | 320 | 280 | 47  | 194 | 11  | 464 | 681 |     |
| 1834   | 9.                            | 10. | 39. | 29,0 | 9.                             | 10. | 4.  | 8   | 011 | 680 | 279 | 671 | 725 | 95  | 498 | 734 |     |
| 1835   | 9.                            | 10. | 25. | 9,3  | 9.                             | 10. | 5.  | 10  | 257 | 40  | 279 | 296 | 256 | 179 | 532 | 788 |     |
| 1836   | B.                            | 9.  | 10. | 10.  | 49,7                           | 9.  | 10. | 6.  | 12  | 504 | 400 | 278 | 920 | 788 | 264 | 566 | 842 |
| 1837   | 9.                            | 10. | 55. | 38,4 | 9.                             | 10. | 7.  | 13  | 787 | 794 | 280 | 549 | 321 | 348 | 600 | 895 |     |
| 1838   | 9.                            | 10. | 41. | 18,8 | 9.                             | 10. | 8.  | 15  | 033 | 154 | 279 | 173 | 852 | 432 | 634 | 949 |     |
| 1839   | 9.                            | 10. | 26. | 59,1 | 9.                             | 10. | 9.  | 17  | 279 | 514 | 279 | 798 | 383 | 517 | 668 | 3   |     |
| 1840   | B.                            | 9.  | 10. | 12.  | 39,5                           | 9.  | 10. | 10. | 19  | 526 | 874 | 278 | 422 | 915 | 601 | 702 | 56  |
| 1841   | 9.                            | 10. | 57. | 28,2 | 9.                             | 10. | 11. | 21  | 809 | 268 | 280 | 51  | 447 | 685 | 736 | 110 |     |
| 1842   | 9.                            | 10. | 43. | 8,6  | 9.                             | 10. | 12. | 23  | 055 | 628 | 279 | 676 | 979 | 770 | 770 | 164 |     |
| 1843   | 9.                            | 10. | 28. | 48,9 | 9.                             | 10. | 13. | 25  | 301 | 988 | 279 | 300 | 510 | 854 | 804 | 218 |     |
| 1844   | B.                            | 9.  | 10. | 14.  | 29,3                           | 9.  | 10. | 14. | 27  | 548 | 348 | 278 | 924 | 41  | 938 | 838 | 272 |
| 1845   | 9.                            | 10. | 59. | 18,0 | 9.                             | 10. | 15. | 29  | 831 | 742 | 280 | 553 | 574 | 23  | 872 | 325 |     |
| 1846   | 9.                            | 10. | 44. | 58,4 | 9.                             | 10. | 16. | 31  | 077 | 102 | 280 | 177 | 106 | 107 | 906 | 379 |     |
| 1847   | 9.                            | 10. | 30. | 38,7 | 9.                             | 10. | 17. | 33  | 324 | 462 | 279 | 802 | 637 | 191 | 940 | 433 |     |
| 1848   | B.                            | 9.  | 10. | 16.  | 19,1                           | 9.  | 10. | 18. | 35  | 570 | 822 | 278 | 427 | 168 | 276 | 974 | 487 |
| 1849   | 9.                            | 11. | 1.  | 7,8  | 9.                             | 10. | 19. | 37  | 853 | 216 | 280 | 55  | 700 | 360 | 8   | 540 |     |
| 1850   | 9.                            | 10. | 46. | 48,2 | 9.                             | 10. | 20. | 38  | 099 | 576 | 280 | 680 | 231 | 444 | 41  | 594 |     |
| 1851   | 9.                            | 10. | 32. | 28,5 | 9.                             | 10. | 21. | 40  | 348 | 936 | 279 | 304 | 762 | 529 | 75  | 648 |     |
| 1852   | B.                            | 9.  | 10. | 18.  | 8,9                            | 9.  | 10. | 22. | 42  | 592 | 297 | 278 | 929 | 294 | 613 | 109 | 701 |
| 1853   | 9.                            | 11. | 2.  | 57,6 | 9.                             | 10. | 23. | 44  | 875 | 691 | 280 | 557 | 827 | 697 | 143 | 755 |     |
| 1854   | 9.                            | 10. | 48. | 38,0 | 9.                             | 10. | 24. | 46  | 121 | 51  | 280 | 182 | 358 | 782 | 177 | 809 |     |
| 1855   | 9.                            | 10. | 34. | 18,3 | 9.                             | 10. | 25. | 48  | 368 | 411 | 279 | 806 | 889 | 866 | 211 | 863 |     |
| 1856   | B.                            | 9.  | 10. | 19.  | 58,7                           | 9.  | 10. | 26. | 50  | 614 | 771 | 279 | 430 | 421 | 950 | 245 | 916 |
| 1857   | 9.                            | 11. | 4.  | 47,4 | 9.                             | 10. | 27. | 52  | 897 | 165 | 281 | 60  | 953 | 35  | 279 | 970 |     |
| 1858   | 9.                            | 10. | 50. | 27,8 | 9.                             | 10. | 28. | 54  | 144 | 525 | 280 | 684 | 485 | 119 | 313 | 24  |     |
| 1859   | 9.                            | 10. | 36. | 8,2  | 9.                             | 10. | 29. | 56  | 390 | 885 | 279 | 308 | 16  | 203 | 347 | 78  |     |
| 1860   | B.                            | 9.  | 10. | 21.  | 48,5                           | 9.  | 10. | 30. | 57  | 636 | 245 | 279 | 933 | 547 | 288 | 381 | 131 |



TABLE I.

EPOCHS of the *Mean Longitudes* of the Sun, and of his *Perigee*, with the *Arguments* which govern the *Inequalities*.

| YEARS. | Mean Longitude<br>of the Sun. |     |     |      | Longitude of<br>Sun's Perigee. |     |     |     | M   | A   | B   | C   | D   | E   | F   | N   |     |
|--------|-------------------------------|-----|-----|------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | S.                            | D.  | M.  | S.   | S.                             | D.  | M.  | S.  |     |     |     |     |     |     |     |     |     |
| 1861   | 9.                            | 11. | 6.  | 37,2 | 9.                             | 10. | 31. | 59  | 919 | 639 | 281 | 562 | 80  | 372 | 415 | 185 |     |
| 1862   | 9.                            | 10. | 52. | 17,6 | 9.                             | 10. | 33. | 1   | 166 | 999 | 280 | 186 | 612 | 456 | 449 | 239 |     |
| 1863   | 9.                            | 10. | 37. | 58,0 | 9.                             | 10. | 34. | 3   | 412 | 359 | 280 | 810 | 143 | 541 | 483 | 292 |     |
| 1864   | B.                            | 9.  | 10. | 23.  | 38,3                           | 9.  | 10. | 35. | 5   | 659 | 719 | 279 | 435 | 674 | 625 | 517 | 346 |
| 1865   | 9.                            | 11. | 8.  | 27,0 | 9.                             | 10. | 36. | 7   | 941 | 113 | 281 | 64  | 207 | 709 | 551 | 400 |     |
| 1866   | 9.                            | 10. | 54. | 7,4  | 9.                             | 10. | 37. | 9   | 188 | 473 | 280 | 688 | 738 | 794 | 585 | 453 |     |
| 1867   | 9.                            | 10. | 39. | 47,8 | 9.                             | 10. | 38. | 11  | 434 | 833 | 280 | 313 | 270 | 878 | 619 | 507 |     |
| 1868   | B.                            | 9.  | 10. | 25.  | 28,1                           | 9.  | 10. | 39. | 13  | 681 | 193 | 279 | 937 | 801 | 962 | 653 | 561 |
| 1869   | 9.                            | 11. | 10. | 16,8 | 9.                             | 10. | 40. | 15  | 963 | 587 | 281 | 566 | 334 | 47  | 687 | 615 |     |
| 1870   | 9.                            | 10. | 55. | 57,2 | 9.                             | 10. | 41. | 17  | 210 | 947 | 280 | 190 | 865 | 131 | 721 | 668 |     |
| 1871   | 9.                            | 10. | 41. | 37,6 | 9.                             | 10. | 42. | 18  | 456 | 307 | 280 | 815 | 397 | 215 | 755 | 722 |     |
| 1872   | B.                            | 9.  | 10. | 27.  | 17,9                           | 9.  | 10. | 43. | 20  | 703 | 667 | 279 | 439 | 928 | 300 | 789 | 776 |
| 1873   | 9.                            | 11. | 12. | 6,6  | 9.                             | 10. | 44. | 22  | 985 | 61  | 281 | 68  | 461 | 384 | 823 | 830 |     |
| 1874   | 9.                            | 10. | 57. | 47,0 | 9.                             | 10. | 45. | 24  | 232 | 421 | 280 | 692 | 992 | 468 | 857 | 883 |     |
| 1875   | 9.                            | 10. | 43. | 27,4 | 9.                             | 10. | 46. | 26  | 478 | 781 | 280 | 318 | 524 | 553 | 891 | 937 |     |
| 1876   | B.                            | 9.  | 10. | 29.  | 7,8                            | 9.  | 10. | 47. | 28  | 725 | 141 | 279 | 941 | 55  | 637 | 925 | 991 |
| 1877   | 9.                            | 11. | 13. | 56,4 | 9.                             | 10. | 48. | 30  | 8   | 535 | 281 | 570 | 588 | 721 | 959 | 45  |     |
| 1878   | 9.                            | 10. | 59. | 36,8 | 9.                             | 10. | 49. | 32  | 254 | 895 | 281 | 195 | 119 | 806 | 993 | 99  |     |
| 1879   | 9.                            | 10. | 45. | 17,2 | 9.                             | 10. | 50. | 34  | 500 | 255 | 280 | 819 | 650 | 890 | 27  | 152 |     |
| 1880   | B.                            | 9.  | 10. | 30.  | 57,6                           | 9.  | 10. | 51. | 36  | 757 | 615 | 279 | 443 | 182 | 974 | 61  | 206 |
| 1881   | 9.                            | 11. | 15. | 46,3 | 9.                             | 10. | 52. | 38  | 30  | 9   | 281 | 72  | 715 | 59  | 95  | 259 |     |
| 1882   | 9.                            | 11. | 1.  | 26,6 | 9.                             | 10. | 53. | 39  | 276 | 369 | 281 | 697 | 246 | 143 | 129 | 313 |     |
| 1883   | 9.                            | 10. | 47. | 7,0  | 9.                             | 10. | 54. | 41  | 522 | 729 | 280 | 321 | 777 | 227 | 163 | 366 |     |
| 1884   | B.                            | 9.  | 10. | 32.  | 47,4                           | 9.  | 10. | 55. | 43  | 769 | 89  | 279 | 946 | 309 | 312 | 197 | 420 |
| 1885   | 9.                            | 11. | 17. | 36,1 | 9.                             | 10. | 56. | 45  | 52  | 483 | 281 | 574 | 841 | 396 | 231 | 474 |     |
| 1886   | 9.                            | 11. | 3.  | 16,4 | 9.                             | 10. | 57. | 47  | 298 | 843 | 281 | 199 | 373 | 480 | 265 | 528 |     |
| 1887   | 9.                            | 10. | 48. | 56,8 | 9.                             | 10. | 58. | 49  | 545 | 203 | 280 | 823 | 905 | 565 | 299 | 582 |     |
| 1888   | B.                            | 9.  | 10. | 34.  | 37,2                           | 9.  | 10. | 59. | 51  | 791 | 564 | 279 | 448 | 436 | 649 | 333 | 636 |
| 1889   | 9.                            | 11. | 19. | 25,9 | 9.                             | 11. | 0.  | 53  | 74  | 958 | 281 | 77  | 968 | 733 | 367 | 689 |     |
| 1890   | 9.                            | 11. | 5.  | 6,2  | 9.                             | 11. | 1.  | 55  | 320 | 318 | 281 | 701 | 500 | 818 | 401 | 743 |     |
| 1891   | 9.                            | 10. | 50. | 46,6 | 9.                             | 11. | 2.  | 57  | 567 | 678 | 280 | 325 | 31  | 902 | 435 | 797 |     |
| 1892   | B.                            | 9.  | 10. | 36.  | 27,0                           | 9.  | 11. | 3.  | 813 | 38  | 279 | 950 | 562 | 986 | 469 | 850 |     |
| 1893   | 9.                            | 11. | 21. | 15,7 | 9.                             | 11. | 5.  | 0   | 96  | 432 | 282 | 579 | 95  | 71  | 503 | 904 |     |
| 1894   | 9.                            | 11. | 6.  | 56,0 | 9.                             | 11. | 6.  | 2   | 342 | 792 | 281 | 203 | 626 | 155 | 537 | 958 |     |
| 1895   | 9.                            | 10. | 52. | 36,4 | 9.                             | 11. | 7.  | 4   | 589 | 152 | 280 | 828 | 158 | 239 | 571 | 12  |     |
| 1896   | B.                            | 9.  | 10. | 38.  | 16,8                           | 9.  | 11. | 8.  | 6   | 835 | 512 | 280 | 452 | 689 | 324 | 605 | 65  |
| 1897   | 9.                            | 11. | 23. | 5,5  | 9.                             | 11. | 9.  | 8   | 118 | 906 | 282 | 81  | 222 | 408 | 639 | 119 |     |
| 1898   | 9.                            | 11. | 8.  | 45,8 | 9.                             | 11. | 10. | 10  | 364 | 266 | 281 | 705 | 753 | 492 | 674 | 173 |     |
| 1899   | 9.                            | 10. | 54. | 26,2 | 9.                             | 11. | 11. | 12  | 611 | 626 | 280 | 330 | 283 | 577 | 707 | 226 |     |
| 1900   | C.                            | 9.  | 10. | 40.  | 6,6                            | 9.  | 11. | 12. | 14  | 857 | 986 | 280 | 954 | 816 | 661 | 741 | 280 |



TABLE II.

MOTIONS for *past* and *future Centuries*, to be added to the EPOCHS in Table I, for the 19th Century, that is, from 1801 to 1900 inclusive, in order to obtain the EPOCHS for past and future Centuries. The Sign — indicates the past Centuries, and + the future, in respect to the Nineteenth Century.

| YEARS. | Mean Longitude<br>of the Sun. |     |     |      | Perigee. |     |     |    | M   | A   | B   | C   | D   | E   | F   | N   |
|--------|-------------------------------|-----|-----|------|----------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | S.                            | D.  | M.  | S.   | S.       | D.  | M.  | S. |     |     |     |     |     |     |     |     |
| —2600  | 11.                           | 22. | 0.  | 10,0 | 10.      | 15. | 17. | 16 | 081 | 224 | 978 | 667 | 561 | 713 | 634 | 309 |
| 2500   | 11.                           | 22. | 45. | 55,0 | 10.      | 17. | 0.  | 27 | 633 | 77  | 980 | 220 | 732 | 147 | 32  | 681 |
| 2400   | 11.                           | 23. | 31. | 40,0 | 10.      | 18. | 43. | 38 | 185 | 930 | 982 | 773 | 904 | 581 | 431 | 54  |
| 2300   | 11.                           | 24. | 17. | 25,0 | 10.      | 20. | 26. | 49 | 737 | 783 | 984 | 326 | 752 | 15  | 830 | 427 |
| 2200   | 11.                           | 25. | 3.  | 10,0 | 10.      | 22. | 10. | 0  | 289 | 637 | 986 | 879 | 247 | 450 | 229 | 800 |
| —2100  | 11.                           | 25. | 48. | 55,0 | 10.      | 23. | 53. | 11 | 841 | 490 | 988 | 432 | 418 | 884 | 627 | 173 |
| 2000   | 11.                           | 26. | 34. | 40,0 | 10.      | 25. | 36. | 22 | 393 | 343 | 990 | 986 | 589 | 318 | 26  | 545 |
| 1900   | 11.                           | 27. | 20. | 25,0 | 10.      | 27. | 19. | 33 | 945 | 196 | 993 | 539 | 761 | 752 | 425 | 918 |
| 1800   | 11.                           | 28. | 6.  | 10,0 | 10.      | 29. | 2.  | 44 | 497 | 49  | 996 | 93  | 932 | 186 | 823 | 291 |
| 1700   | 11.                           | 28. | 51. | 55,0 | 11.      | 0.  | 45. | 55 | 049 | 902 | 997 | 646 | 104 | 621 | 222 | 664 |
| —1600  | 11.                           | 29. | 37. | 40,0 | 11.      | 2.  | 29. | 6  | 601 | 755 | 999 | 199 | 275 | 55  | 621 | 37  |
| 1500   | 0.                            | 0.  | 23. | 25,0 | 11.      | 4.  | 12. | 17 | 153 | 608 | 1   | 753 | 446 | 489 | 20  | 409 |
| 1400   | 0.                            | 1.  | 9.  | 10,0 | 11.      | 5.  | 55. | 28 | 705 | 461 | 3   | 306 | 618 | 923 | 419 | 782 |
| 1300   | 0.                            | 1.  | 54. | 55,0 | 11.      | 7.  | 38. | 39 | 257 | 314 | 5   | 859 | 789 | 357 | 818 | 155 |
| 1200   | 0.                            | 2.  | 40. | 40,0 | 11.      | 9.  | 21. | 50 | 809 | 167 | 7   | 412 | 961 | 792 | 217 | 528 |
| —1100  | 0.                            | 3.  | 26. | 25,0 | 11.      | 11. | 5.  | 1  | 361 | 21  | 10  | 966 | 132 | 226 | 615 | 901 |
| 1000   | 0.                            | 4.  | 12. | 10,0 | 11.      | 12. | 48. | 12 | 913 | 874 | 12  | 520 | 303 | 660 | 14  | 273 |
| 900    | 0.                            | 4.  | 57. | 55,0 | 11.      | 14. | 31. | 23 | 465 | 727 | 14  | 73  | 475 | 94  | 413 | 646 |
| 800    | 0.                            | 5.  | 43. | 40,0 | 11.      | 16. | 14. | 34 | 017 | 580 | 16  | 626 | 646 | 528 | 811 | 19  |
| 700    | 0.                            | 6.  | 29. | 25,0 | 11.      | 17. | 57. | 45 | 569 | 433 | 18  | 180 | 818 | 963 | 210 | 392 |
| —600   | 0.                            | 7.  | 15. | 10,0 | 11.      | 19. | 40. | 56 | 121 | 286 | 20  | 733 | 989 | 397 | 609 | 765 |
| 500    | 0.                            | 8.  | 0.  | 55,0 | 11.      | 21. | 24. | 7  | 673 | 139 | 22  | 287 | 160 | 831 | 7   | 137 |
| 400    | 0.                            | 8.  | 46. | 40,0 | 11.      | 23. | 7.  | 18 | 225 | 993 | 24  | 840 | 332 | 265 | 406 | 510 |
| 300 J  | 0.                            | 9.  | 32. | 25,0 | 11.      | 24. | 50. | 29 | 777 | 846 | 26  | 393 | 503 | 699 | 805 | 883 |
| 300 G  | 11.                           | 29. | 41. | 1,7  | 11.      | 24. | 50. | 27 | 414 | 508 | 999 | 349 | 489 | 697 | 804 | 882 |
| —200   | 0.                            | 0.  | 26. | 46,7 | 11.      | 26. | 33. | 38 | 968 | 362 | 2   | 902 | 660 | 132 | 203 | 255 |
| —100   | 0.                            | 0.  | 13. | 23,3 | 11.      | 28. | 16. | 49 | 484 | 181 | 1   | 451 | 830 | 566 | 601 | 627 |
| + 100  | 11.                           | 29. | 46. | 36,7 | 0.       | 1.  | 43. | 11 | 516 | 819 | 999 | 549 | 170 | 434 | 399 | 373 |
| 200    | 0.                            | 0.  | 32. | 21,7 | 0.       | 3.  | 26. | 22 | 68  | 672 | 1   | 102 | 341 | 868 | 797 | 745 |
| 300    | 0.                            | 0.  | 18. | 58,4 | 0.       | 5.  | 9.  | 33 | 584 | 492 | 1   | 651 | 511 | 303 | 196 | 118 |
| + 400  | 0.                            | 0.  | 5.  | 35,0 | 0.       | 6.  | 52. | 44 | 100 | 311 | 0   | 200 | 681 | 737 | 595 | 491 |
| 500    | 11.                           | 29. | 52. | 11,7 | 0.       | 8.  | 35. | 55 | 616 | 130 | 0   | 749 | 851 | 171 | 993 | 863 |
| 600    | 0.                            | 0.  | 37. | 56,7 | 0.       | 10. | 19. | 6  | 168 | 983 | 2   | 303 | 23  | 605 | 392 | 236 |
| 700    | 0.                            | 0.  | 24. | 33,3 | 0.       | 12. | 2.  | 17 | 684 | 802 | 1   | 851 | 192 | 39  | 791 | 609 |
| 800    | 0.                            | 0.  | 11. | 10,0 | 0.       | 13. | 45. | 28 | 200 | 622 | 1   | 400 | 362 | 474 | 190 | 981 |



TABLE II.—*continued.*

| YEARS. | Mean Longitude<br>of the Sun. |     |     |      | Perigee. |     |     |    | M   | A   | B | C   | D   | E   | F   | N   |
|--------|-------------------------------|-----|-----|------|----------|-----|-----|----|-----|-----|---|-----|-----|-----|-----|-----|
|        | S.                            | D.  | M.  | S.   | S.       | D.  | M.  | S. |     |     |   |     |     |     |     |     |
| + 900  | 11.                           | 29. | 57. | 46,7 | 0.       | 15. | 28. | 39 | 716 | 441 | 0 | 949 | 532 | 908 | 588 | 354 |
| 1000   | 0.                            | 0.  | 43. | 31,7 | 0.       | 17. | 11. | 50 | 268 | 294 | 2 | 503 | 704 | 342 | 987 | 726 |
| 1100   | 0.                            | 0.  | 30. | 8,4  | 0.       | 18. | 55. | 1  | 784 | 113 | 1 | 52  | 874 | 776 | 386 | 99  |
| + 1200 | 0.                            | 0.  | 16. | 45,0 | 0.       | 20. | 38. | 12 | 300 | 932 | 1 | 601 | 44  | 210 | 784 | 472 |
| 1300   | 0.                            | 0.  | 3.  | 21,7 | 0.       | 22. | 21. | 23 | 816 | 752 | 2 | 150 | 214 | 645 | 183 | 844 |
| + 1400 | 0.                            | 0.  | 49. | 6,7  | 0.       | 24. | 4.  | 34 | 368 | 605 | 2 | 703 | 385 | 79  | 582 | 217 |
| 1500   | 0.                            | 0.  | 35. | 43,4 | 0.       | 25. | 47. | 45 | 884 | 424 | 2 | 252 | 555 | 512 | 980 | 590 |
| 1600   | 0.                            | 0.  | 22. | 20,1 | 0.       | 27. | 30. | 56 | 400 | 243 | 1 | 801 | 725 | 947 | 379 | 962 |
| 1700   | 0.                            | 0.  | 8.  | 56,8 | 0.       | 29. | 14. | 7  | 916 | 63  | 0 | 350 | 895 | 380 | 778 | 334 |
| 1800   | 0.                            | 0.  | 54. | 41,8 | 1.       | 0.  | 57. | 18 | 468 | 916 | 3 | 903 | 66  | 813 | 176 | 708 |
| 1900   | 0.                            | 0.  | 41. | 18,4 | 1.       | 2.  | 40. | 29 | 984 | 735 | 2 | 452 | 236 | 246 | 574 | 80  |
| 2000   | 0.                            | 0.  | 27. | 55,0 | 1.       | 4.  | 23. | 40 | 501 | 554 | 1 | 1   | 406 | 680 | 974 | 452 |

## First Supplement to TABLE II.

Centuries *preceding* the Nineteenth.

|       |     |     |      |     |     |     |    |     |     |     |     |     |     |     |     |
|-------|-----|-----|------|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2000  | 11. | 14. | 45,0 | 10. | 25. | 36. | 20 | 960 | 938 | 958 | 934 | 572 | 316 | 25  | 544 |
| 4000  | 10. | 29. | 30,0 | 9.  | 21. | 12. | 40 | 920 | 876 | 916 | 868 | 144 | 632 | 50  | 88  |
| 6000  | 10. | 14. | 15,0 | 8.  | 16. | 49. | 0  | 880 | 814 | 874 | 802 | 716 | 948 | 75  | 632 |
| 8000  | 9.  | 29. | 0,0  | 7.  | 12. | 25. | 20 | 840 | 752 | 832 | 736 | 288 | 264 | 100 | 176 |
| 10000 | 9.  | 13. | 45,0 | 6.  | 8.  | 1.  | 40 | 800 | 690 | 790 | 670 | 860 | 580 | 125 | 720 |

## Second Supplement to TABLE II.

Centuries *after* the Nineteenth.

|       |    |    |     |    |    |     |     |    |     |     |   |     |     |     |     |     |
|-------|----|----|-----|----|----|-----|-----|----|-----|-----|---|-----|-----|-----|-----|-----|
| 2000  | 0. | 0. | 27. | 55 | 1. | 4.  | 23. | 40 | 501 | 554 | 1 | 001 | 406 | 680 | 972 | 452 |
| 4000  | 0. | 0. | 55. | 50 | 2. | 8.  | 47. | 20 | 3   | 108 | 3 | 2   | 812 | 360 | 945 | 905 |
| 6000  | 0. | 1. | 23. | 46 | 3. | 13. | 11. | 0  | 504 | 662 | 4 | 2   | 218 | 40  | 917 | 356 |
| 8000  | 0. | 1. | 51. | 41 | 4. | 17. | 34. | 40 | 5   | 216 | 5 | 3   | 624 | 720 | 889 | 809 |
| 10000 | 0. | 2. | 19. | 36 | 5. | 21. | 58. | 20 | 506 | 770 | 6 | 4   | 30  | 400 | 861 | 262 |



TABLE III.

Secular Variations of the Precession, the Obliquity, and the greatest Equation of the Center, &c.

| Common Years. | Correction common to every Longitude. |      | Differences. | Correction of the Perigee. |    | Differences. | Correction of the greatest Equation of the Center. | Differences. | Correction of the mean Obliquity of the Ecliptic. |      | Secular Variation. |
|---------------|---------------------------------------|------|--------------|----------------------------|----|--------------|----------------------------------------------------|--------------|---------------------------------------------------|------|--------------------|
|               | M.                                    | S.   |              | M.                         | S. |              |                                                    |              | M.                                                | S.   |                    |
| — 800         | + 13.                                 | 2,1  |              | 21.                        | 53 | 1.           | 40                                                 | — 44,4       | + 21.                                             | 42,6 |                    |
| 700           | 12.                                   | 3,0  | 59,1         | 20.                        | 13 | 1.           | 36                                                 | 41,0         | 20.                                               | 55,7 | 46,9               |
| 600           | 11.                                   | 6,1  | 56,9         | 18.                        | 37 | 1.           | 36                                                 | 37,7         | 20.                                               | 8,5  | 47,2               |
| 500           | 10.                                   | 11,3 | 54,8         | 17.                        | 4  | 1.           | 33                                                 | 34,5         | 19.                                               | 21,0 | 47,5               |
|               |                                       |      | 52,9         |                            |    | 1.           | 28                                                 |              |                                                   |      | 47,9               |
| 400           | 9.                                    | 18,4 | 49,7         | 15.                        | 36 | 1.           | 24                                                 | 31,5         | 18.                                               | 33,1 | 48,2               |
| 300           | 8.                                    | 28,7 | 47,9         | 14.                        | 12 | 1.           | 21                                                 | 28,7         | 17.                                               | 44,9 | 48,5               |
| 200           | 7.                                    | 40,8 | 45,6         | 12.                        | 51 | 1.           | 17                                                 | 25,9         | 16.                                               | 56,4 | 48,9               |
| — 100         | 6.                                    | 55,2 | 43,2         | 11.                        | 34 | 1.           | 12                                                 | 23,3         | 16.                                               | 7,5  | 49,1               |
| 0             | 6.                                    | 12,0 | 41,0         | 10.                        | 22 | 1.           | 9                                                  | 20,9         | 15.                                               | 18,4 | 49,3               |
| + 100         | 5.                                    | 31,0 | 38,5         | 9.                         | 13 | 1.           | 5                                                  | 18,6         | 14.                                               | 29,1 | 49,7               |
| 200           | 4.                                    | 52,5 | 36,2         | 8.                         | 8  | 1.           | 0                                                  | 16,4         | 13.                                               | 39,4 | 49,9               |
| 300           | 4.                                    | 16,3 | 33,9         | 7.                         | 8  | 0.           | 57                                                 | 14,3         | 12.                                               | 49,5 | 50,1               |
| 400           | 3.                                    | 42,4 | 31,6         | 6.                         | 11 | 0.           | 53                                                 | 12,4         | 11.                                               | 59,4 | 50,3               |
| 500           | 3.                                    | 10,8 | 29,1         | 5.                         | 18 | 0.           | 48                                                 | 10,6         | 11.                                               | 9,1  | 50,5               |
| 600           | 2.                                    | 41,7 | 26,7         | 4.                         | 30 | 0.           | 45                                                 | 9,0          | 10.                                               | 18,6 | 50,8               |
| 700           | 2.                                    | 15,0 | 24,4         | 3.                         | 45 | 0.           | 40                                                 | 7,5          | 9.                                                | 27,8 | 51,0               |
| 800           | 1.                                    | 50,6 | 21,9         | 3.                         | 5  | 0.           | 37                                                 | 6,2          | 8.                                                | 36,8 | 51,1               |
| 900           | 1.                                    | 28,7 | 19,5         | 2.                         | 28 | 0.           | 33                                                 | 4,9          | 7.                                                | 45,7 | 51,3               |
| 1000          | 1.                                    | 9,2  | 17,1         | 1.                         | 55 | 0.           | 28                                                 | 3,8          | 6.                                                | 54,4 | 51,4               |
| 1100          | 0.                                    | 52,1 | 14,7         | 1.                         | 27 | 0.           | 25                                                 | 2,9          | 6.                                                | 3,0  | 51,5               |
| 1200          | 0.                                    | 37,4 | 12,3         | 1.                         | 2  | 0.           | 20                                                 | 2,1          | 5.                                                | 11,5 | 51,7               |
| 1300          | 0.                                    | 25,1 | 9,9          | 0.                         | 42 | 0.           | 17                                                 | 1,4          | 4.                                                | 19,8 | 51,8               |
| 1400          | 0.                                    | 15,2 | 7,4          | 0.                         | 25 | 0.           | 12                                                 | 0,9          | 3.                                                | 28,0 | 51,9               |
| 1500          | 0.                                    | 7,8  | 4,9          | 0.                         | 13 | 0.           | 8                                                  | 0,4          | 2.                                                | 36,1 | 52,0               |
| 1600          | 0.                                    | 2,9  | 2,6          | 0.                         | 5  | 0.           | 5                                                  | 0,2          | 1.                                                | 44,1 | 52,0               |
| 1700          | + 0.                                  | 0,3  | 0,0          | 0.                         | 0  | 0.           | 0                                                  | 0,0          | + 0.                                              | 52,1 | 52,1               |
| 1800          | + 0.                                  | 0,3  | 2,3          | 0.                         | 0  | 0.           | 5                                                  | 0,0          | 0.                                                | 0,0  | 52,1               |
| 1900          | 0.                                    | 2,6  | 4,8          | 0.                         | 5  | 0.           | 8                                                  | 0,2          | — 0.                                              | 52,1 | 52,1               |
| 2000          | 0.                                    | 7,4  | 7,3          | 0.                         | 13 | 0.           | 12                                                 | 0,4          | 1.                                                | 44,2 | 52,2               |
| 2100          | 0.                                    | 14,7 | 9,7          | 0.                         | 25 | 0.           | 16                                                 | 0,9          | 2.                                                | 36,4 | 52,3               |
| 2200          | 0.                                    | 24,4 | 12,1         | 0.                         | 41 | 0.           | 20                                                 | 1,4          | 3.                                                | 28,7 | 52,2               |
| 2300          | 0.                                    | 36,5 | 14,6         | 1.                         | 1  | 0.           | 25                                                 | 2,1          | 4.                                                | 20,9 | 52,2               |
| 2400          | 0.                                    | 51,1 | 17,0         | 1.                         | 26 | 0.           | 28                                                 | 2,9          | 5.                                                | 13,1 | 52,2               |
| 2500          | 1.                                    | 8,1  | 19,5         | 1.                         | 54 | 0.           | 33                                                 | 3,8          | 6.                                                | 5,3  | 52,2               |
| 2600          | 1.                                    | 27,6 | 21,8         | 2.                         | 27 | 0.           | 36                                                 | 4,9          | 6.                                                | 57,5 | 52,1               |
| 2700          | 1.                                    | 49,4 | 24,4         | 3.                         | 3  | 0.           | 41                                                 | 6,2          | 7.                                                | 49,6 | 52,1               |
| 2800          | 2.                                    | 13,8 | 26,7         | 3.                         | 44 | 0.           | 45                                                 | 7,5          | 8.                                                | 41,7 | 52,1               |
| 2900          | 2.                                    | 40,5 | 29,2         | 4.                         | 29 | 0.           | 49                                                 | 9,0          | 9.                                                | 33,8 | 51,9               |
| 3000          | + 3.                                  | 9,7  |              | 5.                         | 18 |              |                                                    | 10,7         | — 10.                                             | 25,7 |                    |

The Correction of the Longitude is common to the Sun, Moon, Planets, fixed Stars, Perigees and Nodes, and to all the Motions calculated upon the Annual Precession being supposed 50",1.

The Correction of the Perigee is the Correction of its mean Longitude, increased by a term proportional to the Square of the Time, which we were obliged to omit in the Table of the Motion of the Perigee.

The Correction of the Equation of the Center must be multiplied by the Sine of the Anomaly, regard being had to the Sign of the Sine.

The Correction of the Obliquity is to be applied to the mean Obliquity 23°. 27'. 57" for 1800.



TABLE IV.

Motion for Days. JANUARY.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B  | C   | D  | E | F | N | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|----|-----|----|---|---|---|-------------------|------------------------|
| Comm   | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |    |     |    |   |   |   |                   |                        |
| 1      | 1       | 0.                            | 0.  | 0.  | 0,0  | 0,0      | 00  | 00  | 0  | 0   | 0  | 0 | 0 | 0 | 1                 | 0,000                  |
| 2      | 2       |                               | 0.  | 59. | 08,3 | 0,2      | 36  | 34  | 3  | 4   | 1  | 0 | 0 | 0 | 2                 | 003                    |
| 3      | 3       |                               | 1.  | 58. | 16,7 | 0,3      | 73  | 68  | 5  | 9   | 3  | 0 | 0 | 0 | 3                 | 006                    |
| 4      | 4       |                               | 2.  | 57. | 25,0 | 0,5      | 109 | 101 | 8  | 13  | 4  | 1 | 0 | 0 | 4                 | 008                    |
| 5      | 5       |                               | 3.  | 56. | 33,3 | 0,7      | 145 | 135 | 11 | 18  | 6  | 1 | 0 | 1 | 5                 | 011                    |
| 6      | 6       |                               | 4.  | 55. | 41,6 | 0,8      | 181 | 169 | 14 | 22  | 7  | 1 | 0 | 1 | 6                 | 0,014                  |
| 7      | 7       |                               | 5.  | 54. | 50,0 | 1,0      | 218 | 203 | 16 | 27  | 9  | 1 | 1 | 1 | 7                 | 017                    |
| 8      | 8       |                               | 6.  | 53. | 58,3 | 1,2      | 254 | 236 | 19 | 31  | 10 | 2 | 1 | 1 | 8                 | 019                    |
| 9      | 9       |                               | 7.  | 53. | 6,6  | 1,4      | 290 | 270 | 22 | 36  | 12 | 2 | 1 | 1 | 9                 | 022                    |
| 10     | 10      |                               | 8.  | 52. | 15,0 | 1,5      | 327 | 304 | 25 | 40  | 13 | 2 | 1 | 1 | 10                | 025                    |
| 11     | 11      |                               | 9.  | 51. | 23,3 | 1,7      | 363 | 338 | 27 | 44  | 15 | 2 | 1 | 1 | 11                | 0,028                  |
| 12     | 12      |                               | 10. | 50. | 31,6 | 1,9      | 399 | 371 | 30 | 49  | 16 | 2 | 1 | 2 | 12                | 030                    |
| 13     | 13      |                               | 11. | 49. | 40,0 | 2,0      | 435 | 405 | 33 | 53  | 17 | 3 | 1 | 2 | 13                | 033                    |
| 14     | 14      |                               | 12. | 48. | 48,3 | 2,2      | 472 | 439 | 36 | 58  | 19 | 3 | 1 | 2 | 14                | 036                    |
| 15     | 15      |                               | 13. | 47. | 56,6 | 2,3      | 508 | 473 | 38 | 62  | 20 | 3 | 2 | 2 | 15                | 039                    |
| 16     | 16      |                               | 14. | 47. | 4,9  | 2,5      | 544 | 506 | 41 | 67  | 22 | 3 | 2 | 2 | 16                | 0,041                  |
| 17     | 17      |                               | 15. | 46. | 13,3 | 2,7      | 581 | 540 | 44 | 71  | 23 | 4 | 2 | 2 | 17                | 44                     |
| 18     | 18      |                               | 16. | 45. | 21,6 | 2,9      | 617 | 574 | 47 | 76  | 25 | 4 | 2 | 2 | 18                | 46                     |
| 19     | 19      |                               | 17. | 44. | 29,9 | 3,0      | 653 | 608 | 49 | 80  | 26 | 4 | 2 | 3 | 19                | 49                     |
| 20     | 20      |                               | 18. | 43. | 38,3 | 3,2      | 690 | 641 | 52 | 85  | 28 | 4 | 2 | 3 | 20                | 52                     |
| 21     | 21      |                               | 19. | 42. | 46,6 | 3,4      | 726 | 675 | 55 | 89  | 29 | 5 | 2 | 3 | 21                | 0,056                  |
| 22     | 22      |                               | 20. | 41. | 54,9 | 3,6      | 762 | 709 | 58 | 93  | 31 | 5 | 2 | 3 | 22                | 57                     |
| 23     | 23      |                               | 21. | 41. | 3,3  | 3,7      | 798 | 743 | 60 | 98  | 32 | 5 | 2 | 3 | 23                | 60                     |
| 24     | 24      |                               | 22. | 40. | 11,6 | 3,9      | 835 | 777 | 63 | 102 | 33 | 5 | 2 | 3 | 24                | 63                     |
| 25     | 25      |                               | 23. | 39. | 19,9 | 4,0      | 871 | 810 | 66 | 107 | 35 | 5 | 2 | 4 | 25                | 66                     |
| 26     | 26      |                               | 24. | 38. | 28,2 | 4,2      | 907 | 844 | 68 | 111 | 36 | 6 | 2 | 4 | 26                | 0,068                  |
| 27     | 27      |                               | 25. | 37. | 36,6 | 4,4      | 943 | 878 | 71 | 116 | 38 | 6 | 2 | 4 | 27                | 71                     |
| 28     | 28      |                               | 26. | 36. | 44,9 | 4,6      | 980 | 912 | 74 | 120 | 39 | 6 | 2 | 4 | 28                | 74                     |
| 29     | 29      |                               | 27. | 35. | 53,2 | 4,7      | 16  | 945 | 77 | 125 | 41 | 6 | 3 | 4 | 29                | 77                     |
| 30     | 30      |                               | 28. | 35. | 1,6  | 4,9      | 52  | 979 | 79 | 129 | 42 | 7 | 3 | 4 | 30                | 79                     |
| 31     | 31      |                               | 29. | 34. | 9,9  | 5,1      | 89  | 13  | 82 | 134 | 44 | 7 | 3 | 4 | 31                | 82                     |



TABLE IV.

Motion for Days. FEBRUARY.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D  | E  | F | N | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|----|----|---|---|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |    |    |   |   |                   |                        |
| 1      | 1       | 1.                            | 0.  | 33. | 18,2 | 5,3      | 125 | 47  | 85  | 138 | 45 | 7  | 3 | 5 | 32                | 0,085                  |
| 2      | 2       | 1.                            | 1.  | 32. | 26,6 | 5,4      | 161 | 81  | 88  | 142 | 47 | 7  | 3 | 5 | 33                | 088                    |
| 3      | 3       | 1.                            | 2.  | 31. | 34,9 | 5,6      | 198 | 114 | 90  | 147 | 48 | 8  | 3 | 5 | 34                | 091                    |
| 4      | 4       | 1.                            | 3.  | 30. | 43,2 | 5,8      | 234 | 148 | 93  | 151 | 49 | 8  | 3 | 5 | 35                | 093                    |
| 5      | 5       | 1.                            | 4.  | 29. | 51,5 | 5,9      | 270 | 182 | 96  | 156 | 51 | 8  | 3 | 5 | 36                | 096                    |
| 6      | 6       | 1.                            | 5.  | 28. | 59,9 | 6,1      | 306 | 215 | 99  | 160 | 52 | 8  | 3 | 5 | 37                | 0,099                  |
| 7      | 7       | 1.                            | 6.  | 28. | 8,2  | 6,3      | 343 | 249 | 101 | 165 | 54 | 9  | 3 | 5 | 38                | 102                    |
| 8      | 8       | 1.                            | 7.  | 27. | 16,5 | 6,4      | 379 | 283 | 104 | 169 | 55 | 9  | 3 | 6 | 39                | 104                    |
| 9      | 9       | 1.                            | 8.  | 26. | 24,9 | 6,6      | 415 | 317 | 107 | 174 | 57 | 9  | 4 | 6 | 40                | 107                    |
| 10     | 10      | 1.                            | 9.  | 25. | 33,2 | 6,8      | 452 | 351 | 110 | 178 | 58 | 9  | 4 | 6 | 41                | 109                    |
| 11     | 11      | 1.                            | 10. | 24. | 41,5 | 7,0      | 488 | 384 | 112 | 182 | 60 | 9  | 4 | 6 | 42                | 0,112                  |
| 12     | 12      | 1.                            | 11. | 23. | 49,8 | 7,1      | 524 | 418 | 115 | 187 | 61 | 10 | 4 | 6 | 43                | 115                    |
| 13     | 13      | 1.                            | 12. | 22. | 58,2 | 7,3      | 561 | 452 | 118 | 191 | 63 | 10 | 4 | 6 | 44                | 118                    |
| 14     | 14      | 1.                            | 13. | 22. | 6,5  | 7,5      | 597 | 486 | 120 | 196 | 64 | 10 | 4 | 6 | 45                | 120                    |
| 15     | 15      | 1.                            | 14. | 21. | 14,8 | 7,6      | 633 | 520 | 123 | 200 | 65 | 10 | 4 | 7 | 46                | 123                    |
| 16     | 16      | 1.                            | 15. | 20. | 23,2 | 7,8      | 669 | 553 | 126 | 205 | 67 | 11 | 4 | 7 | 47                | 0,125                  |
| 17     | 17      | 1.                            | 16. | 19. | 31,5 | 8,0      | 706 | 587 | 129 | 209 | 68 | 11 | 4 | 7 | 48                | 129                    |
| 18     | 18      | 1.                            | 17. | 18. | 39,8 | 8,1      | 742 | 621 | 131 | 214 | 70 | 11 | 4 | 7 | 49                | 131                    |
| 19     | 19      | 1.                            | 18. | 17. | 48,2 | 8,3      | 778 | 655 | 134 | 218 | 71 | 11 | 4 | 7 | 50                | 134                    |
| 20     | 20      | 1.                            | 19. | 16. | 56,5 | 8,5      | 815 | 688 | 137 | 223 | 73 | 12 | 5 | 7 | 51                | 137                    |
| 21     | 21      | 1.                            | 20. | 16. | 4,8  | 8,7      | 851 | 722 | 140 | 227 | 74 | 12 | 5 | 7 | 52                | 0,140                  |
| 22     | 22      | 1.                            | 21. | 15. | 13,1 | 8,8      | 887 | 756 | 142 | 231 | 76 | 12 | 5 | 8 | 53                | 142                    |
| 23     | 23      | 1.                            | 22. | 14. | 21,5 | 9,0      | 923 | 790 | 145 | 236 | 77 | 12 | 5 | 8 | 54                | 145                    |
| 24     | 24      | 1.                            | 23. | 13. | 29,8 | 9,2      | 960 | 824 | 148 | 240 | 79 | 12 | 5 | 8 | 55                | 148                    |
| 25     | 25      | 1.                            | 24. | 12. | 38,1 | 9,3      | 996 | 858 | 151 | 245 | 80 | 12 | 5 | 8 | 56                | 151                    |
| 26     | 26      | 1.                            | 25. | 11. | 46,5 | 9,5      | 32  | 892 | 153 | 249 | 82 | 13 | 5 | 8 | 57                | 0,153                  |
| 27     | 27      | 1.                            | 26. | 10. | 54,8 | 9,7      | 69  | 925 | 156 | 254 | 83 | 13 | 5 | 8 | 58                | 156                    |
| 28     | 28      | 1.                            | 27. | 10. | 3,1  | 9,8      | 105 | 959 | 159 | 258 | 84 | 13 | 5 | 9 | 59                | 159                    |
| 29     | 29      | 1.                            | 28. | 9.  | 11,4 | 10,0     | 141 | 993 | 162 | 263 | 86 | 14 | 5 | 9 | 60                | 162                    |



TABLE IV.

Motion for Days. MARCH.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|---|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |   |    |                   |                        |
| 1      | 0       | 1.                            | 28. | 9.  | 11,4 | 10,0     | 141 | 993 | 162 | 263 | 86  | 14 | 6 | 9  | 60                | 0,162                  |
| 2      | 1       | 1.                            | 29. | 8.  | 19,8 | 10,2     | 178 | 27  | 164 | 267 | 87  | 14 | 6 | 9  | 61                | 164                    |
| 3      | 2       | 2.                            | 0.  | 7.  | 28,1 | 10,3     | 214 | 61  | 167 | 271 | 89  | 14 | 6 | 9  | 62                | 167                    |
| 4      | 3       | 2.                            | 1.  | 6.  | 36,4 | 10,5     | 250 | 94  | 170 | 276 | 90  | 15 | 6 | 9  | 63                | 170                    |
| 5      | 4       | 2.                            | 2.  | 5.  | 44,8 | 10,7     | 286 | 128 | 173 | 280 | 92  | 15 | 6 | 9  | 64                | 173                    |
| 6      | 5       | 2.                            | 3.  | 4.  | 53,1 | 10,9     | 323 | 162 | 175 | 285 | 93  | 15 | 6 | 10 | 65                | 0,175                  |
| 7      | 6       | 2.                            | 4.  | 4.  | 1,4  | 11,0     | 359 | 196 | 178 | 289 | 95  | 15 | 6 | 10 | 66                | 178                    |
| 8      | 7       | 2.                            | 5.  | 3.  | 9,8  | 11,2     | 395 | 230 | 181 | 294 | 96  | 16 | 6 | 10 | 67                | 181                    |
| 9      | 8       | 2.                            | 6.  | 2.  | 18,1 | 11,4     | 431 | 263 | 184 | 298 | 97  | 16 | 6 | 10 | 68                | 184                    |
| 10     | 9       | 2.                            | 7.  | 1.  | 26,4 | 11,5     | 467 | 297 | 186 | 303 | 99  | 16 | 6 | 10 | 69                | 186                    |
| 11     | 10      | 2.                            | 8.  | 0.  | 34,8 | 11,7     | 504 | 331 | 189 | 307 | 100 | 16 | 6 | 10 | 70                | 0,189                  |
| 12     | 11      | 2.                            | 8.  | 59. | 43,1 | 11,9     | 540 | 365 | 192 | 312 | 102 | 17 | 6 | 11 | 71                | 192                    |
| 13     | 12      | 2.                            | 9.  | 58. | 51,4 | 12,0     | 577 | 399 | 194 | 316 | 103 | 17 | 7 | 11 | 72                | 195                    |
| 14     | 13      | 2.                            | 10. | 57. | 59,7 | 12,2     | 613 | 433 | 197 | 320 | 105 | 17 | 7 | 11 | 73                | 197                    |
| 15     | 14      | 2.                            | 11. | 57. | 8,1  | 12,4     | 649 | 467 | 200 | 325 | 106 | 17 | 7 | 11 | 74                | 200                    |
| 16     | 15      | 2.                            | 12. | 56. | 16,4 | 12,6     | 686 | 500 | 203 | 329 | 108 | 17 | 7 | 11 | 75                | 0,203                  |
| 17     | 16      | 2.                            | 13. | 55. | 24,7 | 12,7     | 722 | 534 | 205 | 334 | 109 | 18 | 7 | 11 | 76                | 206                    |
| 18     | 17      | 2.                            | 14. | 54. | 33,1 | 12,9     | 758 | 568 | 208 | 338 | 111 | 18 | 7 | 11 | 77                | 208                    |
| 19     | 18      | 2.                            | 15. | 53. | 41,4 | 13,1     | 794 | 602 | 211 | 343 | 112 | 18 | 7 | 11 | 78                | 211                    |
| 20     | 19      | 2.                            | 16. | 52. | 49,7 | 13,2     | 831 | 636 | 214 | 347 | 114 | 18 | 7 | 12 | 79                | 214                    |
| 21     | 20      | 2.                            | 17. | 51. | 58,1 | 13,4     | 867 | 670 | 216 | 352 | 115 | 19 | 7 | 12 | 80                | 0,217                  |
| 22     | 21      | 2.                            | 18. | 51. | 6,4  | 13,6     | 903 | 703 | 219 | 356 | 116 | 19 | 7 | 12 | 81                | 219                    |
| 23     | 22      | 2.                            | 19. | 50. | 14,7 | 13,7     | 940 | 737 | 222 | 360 | 118 | 19 | 8 | 12 | 82                | 222                    |
| 24     | 23      | 2.                            | 20. | 49. | 23,0 | 13,9     | 976 | 771 | 225 | 365 | 119 | 19 | 8 | 12 | 83                | 225                    |
| 25     | 24      | 2.                            | 21. | 48. | 31,4 | 14,1     | 12  | 805 | 227 | 369 | 121 | 20 | 8 | 12 | 84                | 227                    |
| 26     | 25      | 2.                            | 22. | 47. | 39,7 | 14,3     | 49  | 839 | 230 | 374 | 122 | 20 | 8 | 12 | 85                | 0,230                  |
| 27     | 26      | 2.                            | 23. | 46. | 48,0 | 14,4     | 85  | 873 | 233 | 378 | 124 | 20 | 8 | 13 | 86                | 233                    |
| 28     | 27      | 2.                            | 24. | 45. | 56,4 | 14,6     | 121 | 907 | 235 | 383 | 125 | 20 | 8 | 13 | 87                | 236                    |
| 29     | 28      | 2.                            | 25. | 45. | 4,7  | 14,8     | 157 | 940 | 238 | 387 | 127 | 21 | 8 | 13 | 88                | 239                    |
| 30     | 29      | 2.                            | 26. | 44. | 13,0 | 14,9     | 194 | 974 | 241 | 392 | 128 | 21 | 8 | 13 | 89                | 241                    |
| 31     | 30      | 2.                            | 27. | 43. | 21,4 | 15,1     | 230 | 08  | 244 | 396 | 129 | 21 | 8 | 13 | 90                | 244                    |
|        | 31      | 2.                            | 28. | 42. | 29,7 | 15,3     | 266 | 42  | 246 | 401 | 131 | 21 | 8 | 13 | 91                | 0,246                  |



TABLE IV.

Motion for Days. APRIL.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 2.                            | 28. | 42. | 29,7 | 15,3     | 266 | 42  | 246 | 401 | 131 | 21 | 8  | 13 | 91                | 0,246                  |
| 2      | 1       | 2.                            | 29. | 41. | 38,0 | 15,4     | 302 | 76  | 249 | 405 | 132 | 21 | 8  | 13 | 92                | 249                    |
| 3      | 2       | 3.                            | 0.  | 40. | 46,3 | 15,6     | 339 | 110 | 252 | 410 | 134 | 22 | 9  | 13 | 93                | 252                    |
| 4      | 3       | 3.                            | 1.  | 39. | 54,7 | 15,8     | 375 | 143 | 255 | 414 | 135 | 22 | 9  | 13 | 94                | 255                    |
| 5      | 4       | 3.                            | 2.  | 39. | 3,0  | 15,9     | 411 | 177 | 257 | 418 | 137 | 22 | 9  | 14 | 95                | 258                    |
| 6      | 5       | 3.                            | 3.  | 38. | 11,3 | 16,1     | 448 | 211 | 260 | 423 | 138 | 22 | 9  | 14 | 96                | 260                    |
| 7      | 6       | 3.                            | 4.  | 37. | 19,7 | 16,3     | 484 | 245 | 263 | 427 | 140 | 23 | 9  | 14 | 97                | 263                    |
| 8      | 7       | 3.                            | 5.  | 36. | 28,0 | 16,5     | 520 | 279 | 266 | 432 | 141 | 23 | 9  | 14 | 98                | 266                    |
| 9      | 8       | 3.                            | 6.  | 35. | 36,3 | 16,6     | 557 | 313 | 268 | 436 | 143 | 23 | 9  | 14 | 99                | 269                    |
| 10     | 9       | 3.                            | 7.  | 34. | 44,7 | 16,8     | 593 | 347 | 271 | 441 | 144 | 23 | 9  | 15 | 100               | 271                    |
| 11     | 10      | 3.                            | 8.  | 33. | 53,0 | 17,0     | 629 | 380 | 274 | 445 | 146 | 24 | 9  | 15 | 101               | 274                    |
| 12     | 11      | 3.                            | 9.  | 33. | 1,3  | 17,1     | 665 | 414 | 277 | 449 | 147 | 24 | 9  | 15 | 102               | 277                    |
| 13     | 12      | 3.                            | 10. | 32. | 9,6  | 17,3     | 702 | 448 | 279 | 454 | 149 | 24 | 9  | 15 | 103               | 280                    |
| 14     | 13      | 3.                            | 11. | 31. | 18,0 | 17,5     | 738 | 482 | 282 | 458 | 150 | 24 | 10 | 15 | 104               | 282                    |
| 15     | 14      | 3.                            | 12. | 30. | 26,3 | 17,6     | 774 | 516 | 285 | 463 | 151 | 24 | 10 | 15 | 105               | 285                    |
| 16     | 15      | 3.                            | 13. | 29. | 34,6 | 17,8     | 811 | 550 | 288 | 467 | 153 | 25 | 10 | 15 | 106               | 288                    |
| 17     | 16      | 3.                            | 14. | 28. | 43,0 | 18,0     | 847 | 584 | 290 | 472 | 154 | 25 | 10 | 16 | 107               | 291                    |
| 18     | 17      | 3.                            | 15. | 27. | 51,3 | 18,2     | 883 | 618 | 293 | 476 | 156 | 25 | 10 | 16 | 108               | 293                    |
| 19     | 18      | 3.                            | 16. | 26. | 59,6 | 18,3     | 919 | 652 | 296 | 481 | 157 | 25 | 10 | 16 | 109               | 296                    |
| 20     | 19      | 3.                            | 17. | 26. | 8,0  | 18,5     | 956 | 686 | 298 | 485 | 159 | 26 | 10 | 16 | 110               | 299                    |
| 21     | 20      | 3.                            | 18. | 25. | 16,3 | 18,7     | 992 | 719 | 301 | 490 | 160 | 26 | 10 | 16 | 111               | 302                    |
| 22     | 21      | 3.                            | 19. | 24. | 24,6 | 18,8     | 28  | 753 | 304 | 494 | 162 | 26 | 10 | 16 | 112               | 304                    |
| 23     | 22      | 3.                            | 20. | 23. | 32,9 | 19,0     | 65  | 787 | 307 | 498 | 163 | 26 | 10 | 16 | 113               | 307                    |
| 24     | 23      | 3.                            | 21. | 22. | 41,3 | 19,2     | 101 | 821 | 309 | 503 | 165 | 27 | 10 | 17 | 114               | 309                    |
| 25     | 24      | 3.                            | 22. | 21. | 49,6 | 19,3     | 137 | 855 | 312 | 507 | 166 | 27 | 11 | 17 | 115               | 312                    |
| 26     | 25      | 3.                            | 23. | 20. | 57,9 | 19,5     | 173 | 889 | 315 | 512 | 167 | 27 | 11 | 17 | 116               | 315                    |
| 27     | 26      | 3.                            | 24. | 20. | 6,3  | 19,7     | 210 | 923 | 318 | 516 | 169 | 27 | 11 | 17 | 117               | 318                    |
| 28     | 27      | 3.                            | 25. | 19. | 14,6 | 19,9     | 246 | 957 | 320 | 521 | 170 | 27 | 11 | 17 | 118               | 320                    |
| 29     | 28      | 3.                            | 26. | 18. | 22,9 | 20,0     | 282 | 991 | 323 | 525 | 172 | 28 | 11 | 17 | 119               | 323                    |
| 30     | 29      | 3.                            | 27. | 17. | 31,2 | 20,2     | 319 | 25  | 326 | 530 | 173 | 28 | 11 | 18 | 120               | 326                    |
|        | 30      | 3.                            | 28. | 16. | 39,6 | 20,4     | 355 | 59  | 329 | 534 | 175 | 28 | 11 | 18 | 121               | 0,329                  |



TABLE IV.

Motion for Days. MAY.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 3.                            | 28. | 16. | 39,6 | 20,4     | 355 | 59  | 329 | 534 | 175 | 28 | 11 | 18 | 121               | 0,329                  |
| 2      | 1       | 3.                            | 29. | 15. | 47,9 | 20,5     | 391 | 92  | 331 | 538 | 176 | 28 | 11 | 18 | 122               | 331                    |
| 3      | 2       | 4.                            | 0.  | 14. | 56,2 | 20,7     | 428 | 126 | 334 | 543 | 178 | 29 | 11 | 18 | 123               | 334                    |
| 4      | 3       | 4.                            | 1.  | 14. | 4,6  | 20,9     | 464 | 160 | 337 | 547 | 179 | 29 | 11 | 18 | 124               | 337                    |
| 5      | 4       | 4.                            | 2.  | 13. | 12,9 | 21,0     | 500 | 194 | 340 | 552 | 181 | 29 | 12 | 18 | 125               | 340                    |
| 6      | 5       | 4.                            | 3.  | 12. | 21,2 | 21,2     | 536 | 228 | 342 | 556 | 182 | 29 | 12 | 18 | 126               | 342                    |
| 7      | 6       | 4.                            | 4.  | 11. | 29,6 | 21,4     | 573 | 262 | 345 | 561 | 183 | 29 | 12 | 19 | 127               | 345                    |
| 8      | 7       | 4.                            | 5.  | 10. | 37,9 | 21,5     | 609 | 296 | 348 | 565 | 185 | 29 | 12 | 19 | 128               | 348                    |
| 9      | 8       | 4.                            | 6.  | 9.  | 46,2 | 21,7     | 645 | 330 | 351 | 569 | 186 | 30 | 12 | 19 | 129               | 351                    |
| 10     | 9       | 4.                            | 7.  | 8.  | 54,5 | 21,9     | 682 | 363 | 353 | 574 | 188 | 30 | 12 | 19 | 130               | 353                    |
| 11     | 10      | 4.                            | 8.  | 8.  | 2,9  | 22,1     | 718 | 397 | 356 | 579 | 189 | 30 | 12 | 19 | 131               | 356                    |
| 12     | 11      | 4.                            | 9.  | 7.  | 11,2 | 22,2     | 754 | 431 | 359 | 583 | 191 | 30 | 12 | 19 | 132               | 359                    |
| 13     | 12      | 4.                            | 10. | 6.  | 19,5 | 22,4     | 790 | 464 | 362 | 587 | 192 | 31 | 12 | 19 | 133               | 362                    |
| 14     | 13      | 4.                            | 11. | 5.  | 27,9 | 22,6     | 827 | 499 | 364 | 592 | 194 | 31 | 12 | 20 | 134               | 364                    |
| 15     | 14      | 4.                            | 12. | 4.  | 36,2 | 22,7     | 863 | 533 | 367 | 596 | 195 | 31 | 12 | 20 | 135               | 367                    |
| 16     | 15      | 4.                            | 13. | 3.  | 44,5 | 22,9     | 899 | 567 | 370 | 601 | 196 | 31 | 13 | 20 | 136               | 370                    |
| 17     | 16      | 4.                            | 14. | 2.  | 52,9 | 23,1     | 935 | 601 | 372 | 605 | 198 | 32 | 13 | 20 | 137               | 373                    |
| 18     | 17      | 4.                            | 15. | 2.  | 1,2  | 23,2     | 972 | 635 | 375 | 610 | 199 | 32 | 13 | 20 | 138               | 375                    |
| 19     | 18      | 4.                            | 16. | 1.  | 9,5  | 23,4     | 08  | 669 | 378 | 614 | 201 | 32 | 13 | 20 | 139               | 378                    |
| 20     | 19      | 4.                            | 17. | 0.  | 17,8 | 23,6     | 44  | 703 | 381 | 619 | 202 | 32 | 13 | 20 | 140               | 381                    |
| 21     | 20      | 4.                            | 17. | 59. | 26,2 | 23,8     | 81  | 737 | 383 | 623 | 204 | 32 | 13 | 21 | 141               | 383                    |
| 22     | 21      | 4.                            | 18. | 58. | 34,5 | 23,9     | 117 | 771 | 386 | 627 | 205 | 33 | 13 | 21 | 142               | 386                    |
| 23     | 22      | 4.                            | 19. | 57. | 42,8 | 24,1     | 153 | 805 | 389 | 632 | 207 | 33 | 13 | 21 | 143               | 389                    |
| 24     | 23      | 4.                            | 20. | 56. | 51,2 | 24,3     | 190 | 839 | 392 | 636 | 208 | 33 | 13 | 21 | 144               | 392                    |
| 25     | 24      | 4.                            | 21. | 55. | 59,5 | 24,4     | 226 | 873 | 394 | 641 | 210 | 33 | 13 | 21 | 145               | 395                    |
| 26     | 25      | 4.                            | 22. | 55. | 7,8  | 24,6     | 262 | 906 | 397 | 645 | 211 | 34 | 13 | 21 | 146               | 397                    |
| 27     | 26      | 4.                            | 23. | 54. | 16,2 | 24,8     | 299 | 940 | 400 | 650 | 213 | 34 | 14 | 21 | 147               | 400                    |
| 28     | 27      | 4.                            | 24. | 53. | 24,5 | 24,9     | 335 | 974 | 403 | 654 | 214 | 34 | 14 | 22 | 148               | 403                    |
| 29     | 28      | 4.                            | 25. | 52. | 32,8 | 25,1     | 371 | 08  | 405 | 659 | 215 | 34 | 14 | 22 | 149               | 406                    |
| 30     | 29      | 4.                            | 26. | 51. | 41,1 | 25,3     | 407 | 42  | 408 | 663 | 217 | 34 | 14 | 22 | 150               | 408                    |
| 31     | 30      | 4.                            | 27. | 50. | 49,5 | 25,5     | 444 | 76  | 411 | 667 | 218 | 35 | 14 | 22 | 151               | 411                    |
|        | 31      | 4.                            | 28. | 49. | 57,8 | 25,6     | 480 | 110 | 414 | 672 | 220 | 35 | 14 | 22 | 152               | 0,414                  |



TABLE IV.

Motion for Days. JUNE.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 4.                            | 28. | 49. | 57,8 | 25,6     | 480 | 110 | 414 | 672 | 220 | 35 | 14 | 22 | 152               | 0,414                  |
| 2      | 1       | 4.                            | 29. | 49. | 6,1  | 25,8     | 516 | 144 | 416 | 676 | 221 | 35 | 14 | 23 | 153               | 416                    |
| 3      | 2       | 5.                            | 0.  | 48. | 14,5 | 26,0     | 553 | 178 | 419 | 681 | 223 | 35 | 14 | 23 | 154               | 419                    |
| 4      | 3       | 5.                            | 1.  | 47. | 22,8 | 26,1     | 589 | 212 | 422 | 685 | 224 | 35 | 14 | 23 | 155               | 422                    |
| 5      | 4       | 5.                            | 2.  | 46. | 31,1 | 26,3     | 625 | 246 | 425 | 690 | 226 | 36 | 14 | 23 | 156               | 425                    |
| 6      | 5       | 5.                            | 3.  | 45. | 39,5 | 26,5     | 661 | 280 | 427 | 694 | 227 | 36 | 14 | 23 | 157               | 427                    |
| 7      | 6       | 5.                            | 4.  | 44. | 47,8 | 26,6     | 698 | 314 | 430 | 699 | 229 | 36 | 15 | 23 | 158               | 430                    |
| 8      | 7       | 5.                            | 5.  | 43. | 56,1 | 26,8     | 734 | 348 | 433 | 703 | 230 | 36 | 15 | 23 | 159               | 433                    |
| 9      | 8       | 5.                            | 6.  | 43. | 4,4  | 27,0     | 770 | 382 | 435 | 708 | 231 | 37 | 15 | 23 | 160               | 436                    |
| 10     | 9       | 5.                            | 7.  | 42. | 12,8 | 27,2     | 807 | 416 | 438 | 712 | 233 | 37 | 15 | 24 | 161               | 438                    |
| 11     | 10      | 5.                            | 8.  | 41. | 21,1 | 27,3     | 843 | 450 | 441 | 717 | 234 | 37 | 15 | 24 | 162               | 441                    |
| 12     | 11      | 5.                            | 9.  | 40. | 29,4 | 27,5     | 879 | 484 | 444 | 721 | 236 | 37 | 15 | 24 | 163               | 444                    |
| 13     | 12      | 5.                            | 10. | 39. | 37,8 | 27,7     | 915 | 518 | 446 | 725 | 237 | 38 | 15 | 24 | 164               | 447                    |
| 14     | 13      | 5.                            | 11. | 38. | 46,1 | 27,8     | 952 | 552 | 449 | 730 | 239 | 38 | 15 | 24 | 165               | 449                    |
| 15     | 14      | 5.                            | 12. | 37. | 54,4 | 28,0     | 988 | 586 | 452 | 734 | 240 | 38 | 15 | 24 | 166               | 452                    |
| 16     | 15      | 5.                            | 13. | 37. | 2,8  | 28,2     | 24  | 620 | 455 | 739 | 242 | 38 | 15 | 24 | 167               | 455                    |
| 17     | 16      | 5.                            | 14. | 36. | 11,1 | 28,3     | 61  | 654 | 457 | 743 | 244 | 38 | 15 | 25 | 168               | 458                    |
| 18     | 17      | 5.                            | 15. | 35. | 19,4 | 28,5     | 97  | 688 | 460 | 748 | 246 | 39 | 16 | 25 | 169               | 460                    |
| 19     | 18      | 5.                            | 16. | 34. | 27,7 | 28,7     | 133 | 722 | 463 | 752 | 247 | 39 | 16 | 25 | 170               | 463                    |
| 20     | 19      | 5.                            | 17. | 33. | 36,1 | 28,8     | 170 | 756 | 466 | 757 | 248 | 39 | 16 | 25 | 171               | 465                    |
| 21     | 20      | 5.                            | 18. | 32. | 44,4 | 29,0     | 206 | 789 | 468 | 761 | 249 | 39 | 16 | 25 | 172               | 468                    |
| 22     | 21      | 5.                            | 19. | 31. | 52,7 | 29,2     | 242 | 823 | 471 | 765 | 250 | 40 | 16 | 25 | 173               | 471                    |
| 23     | 22      | 5.                            | 20. | 31. | 1,1  | 29,4     | 278 | 857 | 474 | 770 | 252 | 40 | 16 | 25 | 174               | 473                    |
| 24     | 23      | 5.                            | 21. | 30. | 9,4  | 29,5     | 315 | 891 | 477 | 774 | 253 | 40 | 16 | 26 | 175               | 476                    |
| 25     | 24      | 5.                            | 22. | 29. | 17,7 | 29,7     | 351 | 925 | 479 | 779 | 255 | 40 | 16 | 26 | 176               | 479                    |
| 26     | 25      | 5.                            | 23. | 28. | 26,0 | 29,9     | 387 | 959 | 482 | 783 | 256 | 41 | 16 | 26 | 177               | 482                    |
| 27     | 26      | 5.                            | 24. | 27. | 34,4 | 30,0     | 424 | 993 | 485 | 788 | 258 | 41 | 16 | 26 | 178               | 485                    |
| 28     | 27      | 5.                            | 25. | 26. | 42,7 | 30,2     | 460 | 27  | 488 | 792 | 259 | 41 | 16 | 26 | 179               | 487                    |
| 29     | 28      | 5.                            | 26. | 25. | 51,0 | 30,4     | 496 | 61  | 490 | 797 | 261 | 41 | 17 | 26 | 180               | 490                    |
| 30     | 29      | 5.                            | 27. | 24. | 59,4 | 30,5     | 532 | 95  | 493 | 801 | 262 | 41 | 17 | 26 | 181               | 493                    |
|        | 30      | 5.                            | 28. | 24. | 7,7  | 30,7     | 569 | 129 | 496 | 806 | 263 | 41 | 17 | 27 | 182               | 0,496                  |



TABLE IV.

Motion for Days. JULY.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 5.                            | 28. | 24. | 7,7  | 30,7     | 569 | 129 | 496 | 806 | 263 | 41 | 17 | 27 | 182               | 0,496                  |
| 2      | 1       | 5.                            | 29. | 23. | 16,0 | 30,9     | 605 | 163 | 499 | 810 | 265 | 42 | 17 | 27 | 183               | 499                    |
| 3      | 2       | 6.                            | 0.  | 22. | 24,4 | 31,1     | 641 | 197 | 501 | 814 | 266 | 42 | 17 | 27 | 184               | 502                    |
| 4      | 3       | 6.                            | 1.  | 21. | 32,7 | 31,2     | 678 | 231 | 504 | 819 | 268 | 42 | 17 | 27 | 185               | 504                    |
| 5      | 4       | 6.                            | 2.  | 20. | 41,0 | 31,4     | 714 | 265 | 507 | 825 | 269 | 43 | 17 | 27 | 186               | 507                    |
| 6      | 5       | 6.                            | 3.  | 19. | 49,3 | 31,6     | 750 | 299 | 509 | 828 | 270 | 43 | 17 | 27 | 187               | 509                    |
| 7      | 6       | 6.                            | 4.  | 18. | 57,7 | 31,7     | 787 | 333 | 512 | 832 | 272 | 43 | 17 | 27 | 188               | 512                    |
| 8      | 7       | 6.                            | 5.  | 18. | 6,0  | 31,9     | 823 | 367 | 515 | 837 | 273 | 43 | 17 | 28 | 189               | 515                    |
| 9      | 8       | 6.                            | 6.  | 17. | 14,3 | 32,1     | 859 | 401 | 518 | 841 | 275 | 44 | 18 | 28 | 190               | 518                    |
| 10     | 9       | 6.                            | 7.  | 16. | 22,7 | 32,2     | 895 | 435 | 520 | 846 | 276 | 44 | 18 | 28 | 191               | 520                    |
| 11     | 10      | 6.                            | 8.  | 15. | 31,0 | 32,4     | 932 | 469 | 523 | 850 | 278 | 44 | 18 | 28 | 192               | 523                    |
| 12     | 11      | 6.                            | 9.  | 14. | 39,3 | 32,6     | 968 | 502 | 526 | 854 | 279 | 44 | 18 | 28 | 193               | 526                    |
| 13     | 12      | 6.                            | 10. | 13. | 47,7 | 32,7     | 04  | 536 | 529 | 859 | 281 | 44 | 18 | 28 | 194               | 529                    |
| 14     | 13      | 6.                            | 11. | 12. | 56,0 | 32,9     | 41  | 570 | 531 | 863 | 282 | 45 | 18 | 29 | 195               | 531                    |
| 15     | 14      | 6.                            | 12. | 12. | 4,3  | 33,1     | 77  | 604 | 534 | 868 | 284 | 45 | 18 | 29 | 196               | 534                    |
| 16     | 15      | 6.                            | 13. | 11. | 12,6 | 33,3     | 113 | 638 | 537 | 872 | 285 | 45 | 18 | 29 | 197               | 537                    |
| 17     | 16      | 6.                            | 14. | 10. | 21,0 | 33,4     | 149 | 672 | 540 | 877 | 287 | 45 | 18 | 29 | 198               | 540                    |
| 18     | 17      | 6.                            | 15. | 9.  | 29,3 | 33,6     | 186 | 706 | 542 | 881 | 288 | 46 | 18 | 29 | 199               | 542                    |
| 19     | 18      | 6.                            | 16. | 8.  | 37,6 | 33,8     | 222 | 740 | 545 | 886 | 289 | 46 | 18 | 29 | 200               | 545                    |
| 20     | 19      | 6.                            | 17. | 7.  | 46,0 | 33,9     | 258 | 774 | 548 | 890 | 291 | 46 | 19 | 29 | 201               | 548                    |
| 21     | 20      | 6.                            | 18. | 6.  | 54,3 | 34,1     | 295 | 808 | 550 | 895 | 293 | 46 | 19 | 30 | 202               | 551                    |
| 22     | 21      | 6.                            | 19. | 6.  | 2,6  | 34,3     | 331 | 842 | 553 | 899 | 294 | 47 | 19 | 30 | 203               | 553                    |
| 23     | 22      | 6.                            | 20. | 5.  | 11,0 | 34,4     | 367 | 876 | 556 | 903 | 296 | 47 | 19 | 30 | 204               | 556                    |
| 24     | 23      | 6.                            | 21. | 4.  | 19,3 | 34,6     | 403 | 910 | 559 | 908 | 297 | 47 | 19 | 30 | 205               | 559                    |
| 25     | 24      | 6.                            | 22. | 3.  | 27,6 | 34,8     | 440 | 944 | 561 | 912 | 298 | 47 | 19 | 30 | 206               | 562                    |
| 26     | 25      | 6.                            | 23. | 2.  | 36,0 | 35,0     | 476 | 978 | 564 | 917 | 300 | 47 | 19 | 30 | 207               | 564                    |
| 27     | 26      | 6.                            | 24. | 1.  | 44,3 | 35,1     | 512 | 12  | 567 | 921 | 301 | 48 | 19 | 30 | 208               | 567                    |
| 28     | 27      | 6.                            | 25. | 0.  | 52,6 | 35,3     | 549 | 46  | 570 | 926 | 303 | 48 | 19 | 31 | 209               | 570                    |
| 29     | 28      | 6.                            | 26. | 0.  | 1,0  | 35,5     | 585 | 80  | 572 | 930 | 304 | 48 | 19 | 31 | 210               | 573                    |
| 30     | 29      | 6.                            | 26. | 59. | 9,3  | 35,6     | 621 | 114 | 575 | 935 | 306 | 48 | 19 | 31 | 211               | 575                    |
| 31     | 30      | 6.                            | 27. | 58. | 17,6 | 35,8     | 658 | 148 | 578 | 939 | 307 | 49 | 20 | 31 | 212               | 578                    |
|        | 31      | 6.                            | 28. | 57. | 26,0 | 36,0     | 694 | 182 | 580 | 943 | 309 | 49 | 20 | 31 | 213               | 0,581                  |



TABLE IV.

Motion for Days. AUGUST.

| YEARS. |         | Mean Longitude of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of a Year. |
|--------|---------|----------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|---------------------|
| Comm.  | Bissex. | S.                         | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                     |
| 1      | 0       | 6.                         | 28. | 57. | 26,0 | 36,0     | 694 | 182 | 580 | 943 | 309 | 49 | 20 | 31 | 213               | 0,581               |
| 2      | 1       | 6.                         | 29. | 56. | 34,3 | 36,1     | 730 | 216 | 583 | 948 | 310 | 49 | 20 | 31 | 214               | 583                 |
| 3      | 2       | 7.                         | 0.  | 55. | 42,6 | 36,3     | 766 | 250 | 586 | 952 | 312 | 49 | 20 | 31 | 215               | 586                 |
| 4      | 3       | 7.                         | 1.  | 54. | 51,0 | 36,5     | 803 | 284 | 589 | 957 | 313 | 50 | 20 | 32 | 216               | 589                 |
| 5      | 4       | 7.                         | 2.  | 53. | 59,3 | 36,7     | 839 | 317 | 591 | 961 | 314 | 50 | 20 | 32 | 217               | 592                 |
| 6      | 5       | 7.                         | 3.  | 53. | 7,6  | 36,8     | 875 | 351 | 594 | 966 | 316 | 50 | 20 | 32 | 218               | 594                 |
| 7      | 6       | 7.                         | 4.  | 52. | 16,0 | 37,0     | 912 | 385 | 597 | 970 | 317 | 50 | 20 | 32 | 219               | 0,597               |
| 8      | 7       | 7.                         | 5.  | 51. | 24,3 | 37,2     | 948 | 419 | 599 | 975 | 319 | 50 | 20 | 32 | 220               | 600                 |
| 9      | 8       | 7.                         | 6.  | 50. | 32,6 | 37,3     | 984 | 453 | 602 | 979 | 320 | 51 | 20 | 32 | 221               | 602                 |
| 10     | 9       | 7.                         | 7.  | 49. | 41,0 | 37,5     | 20  | 487 | 605 | 984 | 322 | 51 | 21 | 32 | 222               | 605                 |
| 11     | 10      | 7.                         | 8.  | 48. | 49,3 | 37,7     | 57  | 521 | 608 | 988 | 323 | 51 | 21 | 33 | 223               | 608                 |
| 12     | 11      | 7.                         | 9.  | 47. | 57,6 | 37,8     | 93  | 555 | 611 | 992 | 325 | 51 | 21 | 33 | 224               | 0,610               |
| 13     | 12      | 7.                         | 10. | 47. | 5,9  | 38,0     | 129 | 589 | 613 | 997 | 326 | 52 | 21 | 33 | 225               | 613                 |
| 14     | 13      | 7.                         | 11. | 46. | 14,2 | 38,2     | 166 | 623 | 616 | 1   | 328 | 52 | 21 | 33 | 226               | 616                 |
| 15     | 14      | 7.                         | 12. | 45. | 22,5 | 38,3     | 202 | 657 | 619 | 6   | 329 | 52 | 21 | 33 | 227               | 619                 |
| 16     | 15      | 7.                         | 13. | 44. | 30,9 | 38,5     | 238 | 691 | 622 | 10  | 330 | 52 | 21 | 33 | 228               | 622                 |
| 17     | 16      | 7.                         | 14. | 43. | 39,2 | 38,7     | 274 | 725 | 624 | 15  | 332 | 53 | 21 | 34 | 229               | 0,625               |
| 18     | 17      | 7.                         | 15. | 42. | 47,5 | 38,9     | 311 | 759 | 627 | 19  | 333 | 53 | 21 | 34 | 230               | 627                 |
| 19     | 18      | 7.                         | 16. | 41. | 55,9 | 39,0     | 347 | 794 | 630 | 24  | 335 | 53 | 21 | 34 | 231               | 630                 |
| 20     | 19      | 7.                         | 17. | 41. | 4,2  | 39,2     | 383 | 827 | 632 | 28  | 336 | 53 | 21 | 34 | 232               | 633                 |
| 21     | 20      | 7.                         | 18. | 40. | 12,5 | 39,4     | 420 | 861 | 635 | 34  | 338 | 53 | 22 | 34 | 233               | 636                 |
| 22     | 21      | 7.                         | 19. | 39. | 20,9 | 39,5     | 456 | 894 | 638 | 37  | 339 | 54 | 22 | 34 | 234               | 0,638               |
| 23     | 22      | 7.                         | 20. | 38. | 29,2 | 39,7     | 492 | 928 | 641 | 42  | 341 | 54 | 22 | 34 | 235               | 641                 |
| 24     | 23      | 7.                         | 21. | 37. | 37,5 | 39,9     | 529 | 962 | 643 | 46  | 342 | 54 | 22 | 35 | 236               | 644                 |
| 25     | 24      | 7.                         | 22. | 36. | 45,8 | 40,0     | 565 | 996 | 646 | 51  | 344 | 54 | 22 | 35 | 237               | 647                 |
| 26     | 25      | 7.                         | 23. | 35. | 54,2 | 40,2     | 601 | 30  | 649 | 55  | 345 | 55 | 22 | 35 | 238               | 649                 |
| 27     | 26      | 7.                         | 24. | 35. | 2,5  | 40,4     | 637 | 63  | 652 | 59  | 346 | 55 | 22 | 35 | 239               | 0,652               |
| 28     | 27      | 7.                         | 25. | 34. | 10,8 | 40,6     | 674 | 97  | 654 | 64  | 348 | 55 | 22 | 35 | 240               | 655                 |
| 29     | 28      | 7.                         | 26. | 33. | 19,2 | 40,7     | 710 | 131 | 657 | 68  | 349 | 55 | 22 | 35 | 241               | 657                 |
| 30     | 29      | 7.                         | 27. | 32. | 27,6 | 40,9     | 746 | 165 | 660 | 73  | 351 | 55 | 22 | 35 | 242               | 660                 |
| 31     | 30      | 7.                         | 28. | 31. | 35,9 | 41,1     | 783 | 199 | 663 | 77  | 352 | 56 | 22 | 36 | 243               | 663                 |
|        | 31      | 7.                         | 29. | 30. | 44,2 | 41,2     | 819 | 233 | 665 | 81  | 354 | 56 | 23 | 36 | 244               | 666                 |



TABLE IV.

Motion for Days. SEPTEMBER.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 7.                            | 29. | 30. | 44,2 | 41,2     | 819 | 233 | 665 | 81  | 354 | 56 | 23 | 36 | 244               | 0,666                  |
| 2      | 1       | 8.                            | 0.  | 29. | 52,5 | 41,4     | 855 | 268 | 668 | 86  | 355 | 56 | 23 | 36 | 245               | 668                    |
| 3      | 2       | 8.                            | 1.  | 29. | 0,8  | 41,6     | 891 | 302 | 671 | 90  | 357 | 56 | 23 | 36 | 246               | 671                    |
| 4      | 3       | 8.                            | 2.  | 28. | 9,1  | 41,7     | 928 | 336 | 674 | 95  | 358 | 57 | 23 | 36 | 247               | 673                    |
| 5      | 4       | 8.                            | 3.  | 27. | 17,4 | 41,9     | 964 | 370 | 676 | 99  | 360 | 57 | 23 | 36 | 248               | 675                    |
| 6      | 5       | 8.                            | 4.  | 26. | 25,8 | 42,1     | 000 | 403 | 679 | 104 | 361 | 57 | 23 | 36 | 249               | 678                    |
| 7      | 6       | 8.                            | 5.  | 25. | 34,1 | 42,2     | 37  | 437 | 682 | 108 | 362 | 57 | 23 | 37 | 250               | 681                    |
| 8      | 7       | 8.                            | 6.  | 24. | 42,5 | 42,4     | 73  | 471 | 685 | 113 | 364 | 58 | 23 | 37 | 251               | 684                    |
| 9      | 8       | 8.                            | 7.  | 23. | 50,8 | 42,6     | 109 | 505 | 687 | 117 | 365 | 58 | 23 | 37 | 252               | 687                    |
| 10     | 9       | 8.                            | 8.  | 22. | 59,1 | 42,8     | 145 | 539 | 690 | 122 | 367 | 58 | 23 | 37 | 253               | 689                    |
| 11     | 10      | 8.                            | 9.  | 22. | 7,4  | 42,9     | 182 | 573 | 693 | 126 | 368 | 58 | 23 | 37 | 254               | 692                    |
| 12     | 11      | 8.                            | 10. | 21. | 15,8 | 43,1     | 218 | 607 | 695 | 130 | 370 | 58 | 24 | 37 | 255               | 695                    |
| 13     | 12      | 8.                            | 11. | 20. | 24,1 | 43,3     | 254 | 641 | 698 | 135 | 371 | 59 | 24 | 38 | 256               | 698                    |
| 14     | 13      | 8.                            | 12. | 19. | 32,4 | 43,4     | 291 | 674 | 701 | 139 | 373 | 59 | 24 | 38 | 257               | 701                    |
| 15     | 14      | 8.                            | 13. | 18. | 40,8 | 43,6     | 327 | 708 | 704 | 144 | 374 | 59 | 24 | 38 | 258               | 703                    |
| 16     | 15      | 8.                            | 14. | 17. | 49,1 | 43,8     | 363 | 742 | 706 | 148 | 376 | 59 | 24 | 38 | 259               | 706                    |
| 17     | 16      | 8.                            | 15. | 16. | 57,4 | 43,9     | 400 | 776 | 709 | 153 | 377 | 60 | 24 | 38 | 260               | 709                    |
| 18     | 17      | 8.                            | 16. | 16. | 5,8  | 44,1     | 436 | 810 | 712 | 157 | 378 | 60 | 24 | 38 | 261               | 711                    |
| 19     | 18      | 8.                            | 17. | 15. | 14,1 | 44,3     | 472 | 844 | 715 | 162 | 380 | 60 | 24 | 38 | 262               | 714                    |
| 20     | 19      | 8.                            | 18. | 14. | 22,4 | 44,5     | 508 | 878 | 717 | 166 | 381 | 60 | 24 | 39 | 263               | 717                    |
| 21     | 20      | 8.                            | 19. | 13. | 30,7 | 44,6     | 545 | 912 | 720 | 170 | 383 | 61 | 24 | 39 | 264               | 720                    |
| 22     | 21      | 8.                            | 20. | 12. | 39,1 | 44,8     | 581 | 946 | 723 | 175 | 384 | 61 | 24 | 39 | 265               | 722                    |
| 23     | 22      | 8.                            | 21. | 11. | 47,4 | 45,0     | 617 | 979 | 726 | 179 | 386 | 61 | 25 | 39 | 266               | 725                    |
| 24     | 23      | 8.                            | 22. | 10. | 55,7 | 45,1     | 654 | 13  | 728 | 184 | 387 | 61 | 25 | 39 | 267               | 728                    |
| 25     | 24      | 8.                            | 23. | 10. | 4,1  | 45,3     | 690 | 47  | 731 | 188 | 389 | 61 | 25 | 39 | 268               | 731                    |
| 26     | 25      | 8.                            | 24. | 9.  | 12,4 | 45,5     | 726 | 81  | 734 | 193 | 390 | 62 | 25 | 39 | 269               | 733                    |
| 27     | 26      | 8.                            | 25. | 8.  | 20,7 | 45,6     | 762 | 115 | 737 | 197 | 392 | 62 | 25 | 40 | 270               | 736                    |
| 28     | 27      | 8.                            | 26. | 7.  | 29,1 | 45,8     | 799 | 149 | 739 | 202 | 393 | 62 | 25 | 40 | 271               | 739                    |
| 29     | 28      | 8.                            | 27. | 6.  | 37,4 | 46,0     | 835 | 182 | 742 | 206 | 394 | 62 | 25 | 40 | 272               | 742                    |
| 30     | 29      | 8.                            | 28. | 5.  | 45,7 | 46,2     | 871 | 216 | 745 | 211 | 396 | 63 | 25 | 40 | 273               | 744                    |
|        | 30      | 8.                            | 29. | 4.  | 54,0 | 46,3     | 908 | 250 | 748 | 215 | 397 | 63 | 25 | 40 | 274               | 0,747                  |



TABLE IV.

Motion for Days. OCTOBER.

| YEARS. |         | Mean Longitude of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of a Year. |
|--------|---------|----------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|---------------------|
| Comm.  | Bissex. | S.                         | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                     |
| 1      | 0       | 8.                         | 29. | 4.  | 54,0 | 46,3     | 908 | 250 | 748 | 215 | 397 | 63 | 25 | 40 | 274               | 0,747               |
| 2      | 1       | 9.                         | 0.  | 4.  | 2,4  | 46,5     | 944 | 284 | 750 | 219 | 399 | 63 | 25 | 40 | 275               | 750                 |
| 3      | 2       | 9.                         | 1.  | 3.  | 10,7 | 46,7     | 980 | 318 | 753 | 224 | 400 | 63 | 26 | 40 | 276               | 753                 |
| 4      | 3       | 9.                         | 2.  | 2.  | 19,0 | 46,9     | 16  | 352 | 756 | 228 | 402 | 64 | 26 | 41 | 277               | 755                 |
| 5      | 4       | 9.                         | 3.  | 1.  | 27,4 | 47,0     | 53  | 386 | 759 | 233 | 403 | 64 | 26 | 41 | 278               | 758                 |
| 6      | 5       | 9.                         | 4.  | 0.  | 35,7 | 47,2     | 89  | 420 | 761 | 237 | 405 | 64 | 26 | 41 | 279               | 760                 |
| 7      | 6       | 9.                         | 4.  | 59. | 44,0 | 47,4     | 125 | 454 | 764 | 242 | 406 | 64 | 26 | 41 | 280               | 763                 |
| 8      | 7       | 9.                         | 5.  | 58. | 52,4 | 47,5     | 162 | 488 | 767 | 246 | 408 | 65 | 26 | 41 | 281               | 766                 |
| 9      | 8       | 9.                         | 6.  | 58. | 0,7  | 47,7     | 198 | 521 | 769 | 251 | 409 | 65 | 26 | 41 | 282               | 769                 |
| 10     | 9       | 9.                         | 7.  | 57. | 9,0  | 47,9     | 234 | 555 | 772 | 255 | 410 | 65 | 26 | 41 | 283               | 772                 |
| 11     | 10      | 9.                         | 8.  | 56. | 17,3 | 48,0     | 271 | 589 | 775 | 259 | 412 | 65 | 26 | 42 | 284               | 775                 |
| 12     | 11      | 9.                         | 9.  | 55. | 25,7 | 48,2     | 307 | 623 | 778 | 264 | 413 | 65 | 26 | 42 | 285               | 777                 |
| 13     | 12      | 9.                         | 10. | 54. | 34,0 | 48,4     | 343 | 657 | 780 | 268 | 415 | 66 | 26 | 42 | 286               | 780                 |
| 14     | 13      | 9.                         | 11. | 53. | 42,4 | 48,5     | 379 | 691 | 783 | 273 | 416 | 66 | 27 | 42 | 287               | 782                 |
| 15     | 14      | 9.                         | 12. | 52. | 50,7 | 48,7     | 416 | 724 | 786 | 277 | 418 | 66 | 27 | 42 | 288               | 785                 |
| 16     | 15      | 9.                         | 13. | 51. | 59,0 | 48,9     | 452 | 758 | 789 | 282 | 419 | 66 | 27 | 42 | 289               | 788                 |
| 17     | 16      | 9.                         | 14. | 51. | 7,3  | 49,0     | 488 | 792 | 791 | 286 | 421 | 67 | 27 | 42 | 290               | 791                 |
| 18     | 17      | 9.                         | 15. | 50. | 15,7 | 49,2     | 525 | 826 | 794 | 291 | 422 | 67 | 27 | 43 | 291               | 793                 |
| 19     | 18      | 9.                         | 16. | 49. | 24,0 | 49,4     | 561 | 860 | 797 | 295 | 424 | 67 | 27 | 43 | 292               | 796                 |
| 20     | 19      | 9.                         | 17. | 48. | 32,3 | 49,6     | 597 | 893 | 800 | 299 | 425 | 67 | 27 | 43 | 293               | 799                 |
| 21     | 20      | 9.                         | 18. | 47. | 40,6 | 49,7     | 633 | 927 | 802 | 304 | 427 | 68 | 27 | 43 | 294               | 802                 |
| 22     | 21      | 9.                         | 19. | 46. | 49,0 | 49,9     | 670 | 961 | 805 | 308 | 428 | 68 | 27 | 43 | 295               | 804                 |
| 23     | 22      | 9.                         | 20. | 45. | 57,3 | 50,1     | 706 | 995 | 808 | 313 | 429 | 68 | 27 | 43 | 296               | 807                 |
| 24     | 23      | 9.                         | 21. | 45. | 5,6  | 50,2     | 742 | 29  | 811 | 317 | 431 | 68 | 27 | 44 | 297               | 810                 |
| 25     | 24      | 9.                         | 22. | 44. | 14,0 | 50,4     | 779 | 63  | 813 | 322 | 432 | 68 | 28 | 44 | 298               | 813                 |
| 26     | 25      | 9.                         | 23. | 43. | 22,3 | 50,6     | 815 | 96  | 816 | 326 | 434 | 69 | 28 | 44 | 299               | 815                 |
| 27     | 26      | 9.                         | 24. | 42. | 30,6 | 50,7     | 851 | 130 | 819 | 331 | 435 | 69 | 28 | 44 | 300               | 818                 |
| 28     | 27      | 9.                         | 25. | 41. | 39,0 | 50,9     | 887 | 164 | 822 | 335 | 437 | 69 | 28 | 44 | 301               | 821                 |
| 29     | 28      | 9.                         | 26. | 40. | 47,3 | 51,1     | 924 | 198 | 824 | 340 | 438 | 69 | 28 | 44 | 302               | 824                 |
| 30     | 29      | 9.                         | 27. | 39. | 55,6 | 51,2     | 960 | 232 | 827 | 344 | 440 | 70 | 28 | 44 | 303               | 826                 |
| 31     | 30      | 9.                         | 28. | 39. | 4,0  | 51,4     | 996 | 266 | 830 | 348 | 441 | 70 | 28 | 44 | 304               | 829                 |
|        | 31      | 9.                         | 29. | 38. | 12,4 | 51,6     | 33  | 300 | 832 | 353 | 443 | 70 | 28 | 45 | 305               | 0,832               |



TABLE IV.

Motion for Days. NOVEMBER.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 9.                            | 29. | 38. | 12,4 | 51,6     | 33  | 300 | 832 | 353 | 443 | 70 | 28 | 45 | 305               | 0,832                  |
| 2      | 1       | 10.                           | 0.  | 37. | 20,6 | 51,8     | 69  | 333 | 835 | 357 | 444 | 70 | 28 | 45 | 306               | 835                    |
| 3      | 2       | 10.                           | 1.  | 36. | 29,0 | 51,9     | 105 | 367 | 838 | 362 | 445 | 71 | 28 | 45 | 307               | 838                    |
| 4      | 3       | 10.                           | 2.  | 35. | 37,3 | 52,1     | 142 | 401 | 841 | 366 | 447 | 71 | 29 | 45 | 308               | 840                    |
| 5      | 4       | 10.                           | 3.  | 34. | 45,6 | 52,3     | 178 | 435 | 843 | 371 | 448 | 71 | 29 | 45 | 309               | 843                    |
| 6      | 5       | 10.                           | 4.  | 33. | 54,0 | 52,4     | 214 | 468 | 846 | 375 | 450 | 71 | 29 | 45 | 310               | 845                    |
| 7      | 6       | 10.                           | 5.  | 33. | 2,3  | 52,6     | 250 | 502 | 849 | 380 | 451 | 72 | 29 | 46 | 311               | 848                    |
| 8      | 7       | 10.                           | 6.  | 32. | 10,6 | 52,8     | 287 | 536 | 852 | 384 | 453 | 72 | 29 | 46 | 312               | 851                    |
| 9      | 8       | 10.                           | 7.  | 31. | 19,0 | 52,9     | 323 | 570 | 854 | 389 | 454 | 72 | 29 | 46 | 313               | 854                    |
| 10     | 9       | 10.                           | 8.  | 30. | 27,3 | 53,0     | 359 | 604 | 857 | 393 | 456 | 72 | 29 | 46 | 314               | 856                    |
| 11     | 10      | 10.                           | 9.  | 29. | 35,6 | 53,3     | 396 | 638 | 860 | 397 | 457 | 72 | 29 | 46 | 315               | 859                    |
| 12     | 11      | 10.                           | 10. | 28. | 44,0 | 53,5     | 432 | 671 | 863 | 402 | 458 | 73 | 29 | 46 | 316               | 862                    |
| 13     | 12      | 10.                           | 11. | 27. | 52,3 | 53,6     | 468 | 705 | 865 | 406 | 460 | 73 | 29 | 46 | 317               | 865                    |
| 14     | 13      | 10.                           | 12. | 27. | 0,7  | 53,8     | 504 | 739 | 868 | 411 | 461 | 73 | 29 | 47 | 318               | 867                    |
| 15     | 14      | 10.                           | 13. | 26. | 8,9  | 54,0     | 541 | 773 | 871 | 415 | 463 | 73 | 30 | 47 | 319               | 870                    |
| 16     | 15      | 10.                           | 14. | 25. | 17,2 | 54,1     | 577 | 807 | 873 | 420 | 464 | 74 | 30 | 47 | 320               | 873                    |
| 17     | 16      | 10.                           | 15. | 24. | 25,5 | 54,3     | 613 | 840 | 876 | 424 | 466 | 74 | 30 | 47 | 321               | 876                    |
| 18     | 17      | 10.                           | 16. | 23. | 33,9 | 54,5     | 650 | 874 | 879 | 429 | 467 | 74 | 30 | 47 | 322               | 878                    |
| 19     | 18      | 10.                           | 17. | 22. | 42,2 | 54,6     | 686 | 908 | 882 | 433 | 469 | 74 | 30 | 47 | 323               | 882                    |
| 20     | 19      | 10.                           | 18. | 21. | 50,5 | 54,8     | 722 | 942 | 884 | 438 | 470 | 75 | 30 | 47 | 324               | 884                    |
| 21     | 20      | 10.                           | 19. | 20. | 58,9 | 55,0     | 759 | 976 | 887 | 442 | 472 | 75 | 30 | 48 | 325               | 887                    |
| 22     | 21      | 10.                           | 20. | 20. | 7,2  | 55,2     | 795 | 9   | 890 | 446 | 473 | 75 | 30 | 48 | 326               | 890                    |
| 23     | 22      | 10.                           | 21. | 19. | 15,5 | 55,3     | 831 | 43  | 893 | 451 | 475 | 75 | 30 | 48 | 327               | 893                    |
| 24     | 23      | 10.                           | 22. | 18. | 23,9 | 55,5     | 867 | 77  | 895 | 455 | 476 | 76 | 30 | 48 | 328               | 895                    |
| 25     | 24      | 10.                           | 23. | 17. | 32,2 | 55,7     | 904 | 111 | 898 | 460 | 477 | 76 | 30 | 48 | 329               | 898                    |
| 26     | 25      | 10.                           | 24. | 16. | 40,5 | 55,8     | 940 | 144 | 901 | 464 | 479 | 76 | 31 | 48 | 330               | 900                    |
| 27     | 26      | 10.                           | 25. | 15. | 48,8 | 56,0     | 976 | 178 | 904 | 469 | 480 | 76 | 31 | 49 | 331               | 903                    |
| 28     | 27      | 10.                           | 26. | 14. | 57,2 | 56,2     | 13  | 212 | 906 | 473 | 482 | 77 | 31 | 49 | 332               | 906                    |
| 29     | 28      | 10.                           | 27. | 14. | 5,5  | 56,3     | 49  | 246 | 909 | 478 | 483 | 77 | 31 | 49 | 333               | 909                    |
| 30     | 29      | 10.                           | 28. | 13. | 13,8 | 56,5     | 85  | 279 | 912 | 482 | 484 | 77 | 31 | 49 | 334               | 911                    |
|        | 30      | 10.                           | 29. | 12. | 22,2 | 56,7     | 121 | 313 | 915 | 486 | 486 | 77 | 31 | 49 | 335               | 0,914                  |



TABLE IV.

Motion for Days. DECEMBER.

| YEARS. |         | Mean Longitude<br>of the Sun. |     |     |      | Perigee. | M   | A   | B   | C   | D   | E  | F  | N  | Days of the Year. | Fraction of<br>a Year. |
|--------|---------|-------------------------------|-----|-----|------|----------|-----|-----|-----|-----|-----|----|----|----|-------------------|------------------------|
| Comm.  | Bissex. | S.                            | D.  | M.  | S.   | S.       |     |     |     |     |     |    |    |    |                   |                        |
| 1      | 0       | 10.                           | 29. | 12. | 22,2 | 56,7     | 121 | 313 | 915 | 486 | 486 | 77 | 31 | 49 | 335               | 0,914                  |
| 2      | 1       | 11.                           | 0.  | 11. | 30,5 | 56,8     | 158 | 347 | 917 | 491 | 488 | 77 | 31 | 49 | 336               | 917                    |
| 3      | 2       | 11.                           | 1.  | 10. | 38,8 | 57,0     | 194 | 381 | 920 | 495 | 489 | 78 | 31 | 49 | 337               | 920                    |
| 4      | 3       | 11.                           | 2.  | 9.  | 47,2 | 57,2     | 230 | 415 | 923 | 500 | 490 | 78 | 31 | 50 | 338               | 922                    |
| 5      | 4       | 11.                           | 3.  | 8.  | 55,5 | 57,4     | 267 | 448 | 926 | 504 | 492 | 78 | 31 | 50 | 339               | 925                    |
| 6      | 5       | 11.                           | 4.  | 8.  | 3,8  | 57,5     | 303 | 482 | 928 | 509 | 493 | 78 | 32 | 50 | 340               | 928                    |
| 7      | 6       | 11.                           | 5.  | 7.  | 12,1 | 57,7     | 339 | 515 | 931 | 513 | 495 | 79 | 32 | 50 | 341               | 931                    |
| 8      | 7       | 11.                           | 6.  | 6.  | 20,5 | 57,9     | 375 | 549 | 934 | 518 | 496 | 79 | 32 | 50 | 342               | 933                    |
| 9      | 8       | 11.                           | 7.  | 5.  | 28,8 | 58,0     | 412 | 583 | 937 | 522 | 498 | 79 | 32 | 50 | 343               | 936                    |
| 10     | 9       | 11.                           | 8.  | 4.  | 37,1 | 58,2     | 448 | 617 | 939 | 527 | 499 | 79 | 32 | 50 | 344               | 939                    |
| 11     | 10      | 11.                           | 9.  | 3.  | 45,5 | 58,4     | 484 | 651 | 942 | 531 | 501 | 80 | 32 | 51 | 345               | 942                    |
| 12     | 11      | 11.                           | 10. | 2.  | 53,8 | 58,5     | 521 | 685 | 945 | 536 | 502 | 80 | 32 | 51 | 346               | 944                    |
| 13     | 12      | 11.                           | 11. | 2.  | 2,2  | 58,7     | 557 | 719 | 947 | 540 | 504 | 80 | 32 | 51 | 347               | 947                    |
| 14     | 13      | 11.                           | 12. | 1.  | 10,5 | 58,9     | 593 | 753 | 950 | 544 | 505 | 80 | 32 | 51 | 348               | 950                    |
| 15     | 14      | 11.                           | 13. | 0.  | 18,8 | 59,0     | 630 | 787 | 953 | 548 | 507 | 81 | 32 | 51 | 349               | 953                    |
| 16     | 15      | 11.                           | 13. | 59. | 27,1 | 59,2     | 666 | 820 | 956 | 553 | 508 | 81 | 32 | 51 | 350               | 955                    |
| 17     | 16      | 11.                           | 14. | 58. | 35,4 | 59,4     | 702 | 853 | 958 | 558 | 509 | 81 | 33 | 51 | 351               | 958                    |
| 18     | 17      | 11.                           | 15. | 57. | 43,8 | 59,6     | 738 | 887 | 961 | 562 | 511 | 81 | 33 | 52 | 352               | 961                    |
| 19     | 18      | 11.                           | 16. | 56. | 52,1 | 59,7     | 775 | 921 | 964 | 567 | 512 | 81 | 33 | 52 | 353               | 964                    |
| 20     | 19      | 11.                           | 17. | 56. | 0,4  | 59,9     | 811 | 955 | 967 | 571 | 514 | 82 | 33 | 52 | 354               | 966                    |
| 21     | 20      | 11.                           | 18. | 55. | 8,8  | 60,1     | 847 | 989 | 969 | 575 | 515 | 82 | 33 | 52 | 355               | 969                    |
| 22     | 21      | 11.                           | 19. | 54. | 17,1 | 60,2     | 884 | 23  | 972 | 580 | 517 | 82 | 33 | 52 | 356               | 971                    |
| 23     | 22      | 11.                           | 20. | 53. | 25,4 | 60,4     | 920 | 56  | 975 | 584 | 518 | 82 | 33 | 52 | 357               | 974                    |
| 24     | 23      | 11.                           | 21. | 52. | 33,8 | 60,6     | 956 | 90  | 978 | 589 | 520 | 83 | 33 | 52 | 358               | 977                    |
| 25     | 24      | 11.                           | 22. | 51. | 42,1 | 60,7     | 992 | 124 | 980 | 593 | 521 | 83 | 33 | 53 | 359               | 980                    |
| 26     | 25      | 11.                           | 23. | 50. | 50,4 | 60,9     | 29  | 157 | 983 | 598 | 523 | 83 | 33 | 53 | 360               | 983                    |
| 27     | 26      | 11.                           | 24. | 49. | 58,7 | 61,1     | 65  | 191 | 986 | 602 | 524 | 83 | 33 | 53 | 361               | 985                    |
| 28     | 27      | 11.                           | 25. | 49. | 7,1  | 61,3     | 101 | 225 | 989 | 606 | 526 | 83 | 34 | 53 | 362               | 988                    |
| 29     | 28      | 11.                           | 26. | 48. | 15,4 | 61,4     | 138 | 259 | 991 | 611 | 527 | 84 | 34 | 53 | 363               | 991                    |
| 30     | 29      | 11.                           | 27. | 47. | 23,7 | 61,6     | 174 | 293 | 994 | 616 | 528 | 84 | 34 | 53 | 364               | 994                    |
| 31     | 30      | 11.                           | 28. | 46. | 32,1 | 61,8     | 210 | 326 | 997 | 620 | 530 | 84 | 34 | 54 | 365               | 997                    |
|        | 31      | 11.                           | 29. | 45. | 40,4 | 61,9     | 246 | 360 | 0   | 624 | 531 | 84 | 34 | 54 | 366               | 0                      |



TABLE V.

Motion of the Sun for Hours, Minutes and Seconds.

| HOURS. |                    |      |       |   | MINUTES. |                    |    |      |                    | SECONDS. |                    |    |     |
|--------|--------------------|------|-------|---|----------|--------------------|----|------|--------------------|----------|--------------------|----|-----|
|        | Motion of the Sun. |      | M and |   |          | Motion of the Sun. |    |      | Motion of the Sun. |          | Motion of the Sun. |    |     |
| H.     | M.                 | S.   | A     | B | C        | M.                 | M. | S.   | M.                 | M.       | S.                 | S. | S.  |
| 1      | 2.                 | 27,8 | 1     | 0 | 0        | 1                  | 0. | 2,5  | 31                 | 1.       | 16,4               | 1  | 0,0 |
| 2      | 4.                 | 55,7 | 3     | 0 | 0        | 2                  |    | 4,9  | 32                 | 1.       | 18,8               | 2  | 0,1 |
| 3      | 7.                 | 23,5 | 4     | 0 | 1        | 3                  |    | 7,4  | 33                 | 1.       | 21,3               | 3  | 0,1 |
| 4      | 9.                 | 51,4 | 6     | 0 | 1        | 4                  |    | 9,9  | 34                 | 1.       | 23,8               | 4  | 0,2 |
| 5      | 12.                | 19,2 | 7     | 1 | 1        | 5                  |    | 12,3 | 35                 | 1.       | 26,2               | 5  | 0,2 |
| 6      | 14.                | 47,1 | 8     | 1 | 1        | 6                  |    | 14,8 | 36                 | 1.       | 28,7               | 6  | 0,2 |
| 7      | 17.                | 14,9 | 10    | 1 | 1        | 7                  |    | 17,2 | 37                 | 1.       | 31,2               | 7  | 0,3 |
| 8      | 19.                | 42,8 | 11    | 1 | 1        | 8                  |    | 19,7 | 38                 | 1.       | 33,6               | 8  | 0,3 |
| 9      | 22.                | 10,6 | 13    | 1 | 2        | 9                  |    | 22,2 | 39                 | 1.       | 36,1               | 9  | 0,4 |
| 10     | 24.                | 38,5 | 14    | 1 | 2        | 10                 |    | 24,6 | 40                 | 1.       | 38,6               | 10 | 0,4 |
| 11     | 27.                | 6,3  | 16    | 1 | 2        | 11                 |    | 27,1 | 41                 | 1.       | 41,0               | 11 | 0,5 |
| 12     | 29.                | 34,2 | 17    | 1 | 2        | 12                 |    | 29,6 | 42                 | 1.       | 43,5               | 12 | 0,5 |
| 13     | 32.                | 2,0  | 18    | 1 | 2        | 13                 |    | 32,0 | 43                 | 1.       | 46,0               | 13 | 0,5 |
| 14     | 34.                | 29,9 | 20    | 2 | 3        | 14                 |    | 34,5 | 44                 | 1.       | 48,4               | 14 | 0,6 |
| 15     | 36.                | 57,7 | 21    | 2 | 3        | 15                 |    | 37,0 | 45                 | 1.       | 50,9               | 15 | 0,6 |
| 16     | 39.                | 25,6 | 23    | 2 | 3        | 16                 |    | 39,4 | 46                 | 1.       | 53,3               | 16 | 0,7 |
| 17     | 41.                | 53,4 | 24    | 2 | 3        | 17                 |    | 41,9 | 47                 | 1.       | 55,8               | 17 | 0,7 |
| 18     | 44.                | 21,2 | 25    | 2 | 3        | 18                 |    | 44,4 | 48                 | 1.       | 58,3               | 18 | 0,7 |
| 19     | 46.                | 49,1 | 27    | 2 | 4        | 19                 |    | 46,8 | 49                 | 2.       | 0,7                | 19 | 0,8 |
| 20     | 49.                | 16,9 | 28    | 2 | 4        | 20                 |    | 49,3 | 50                 | 2.       | 3,2                | 20 | 0,8 |
| 21     | 51.                | 44,8 | 30    | 2 | 4        | 21                 |    | 51,7 | 51                 | 2.       | 5,7                | 21 | 0,9 |
| 22     | 54.                | 12,6 | 31    | 2 | 4        | 22                 |    | 54,2 | 52                 | 2.       | 8,1                | 22 | 0,9 |
| 23     | 56.                | 40,5 | 32    | 3 | 4        | 23                 |    | 56,7 | 53                 | 2.       | 10,6               | 23 | 0,9 |
| 24     | 59.                | 8,3  | 34    | 3 | 4        | 24                 |    | 59,1 | 54                 | 2.       | 13,1               | 24 | 1,0 |
|        |                    |      |       |   |          | 25                 | 1. | 1,6  | 55                 | 2.       | 15,5               | 25 | 1,0 |
|        |                    |      |       |   |          | 26                 | 1. | 4,1  | 56                 | 2.       | 18,0               | 26 | 1,1 |
|        |                    |      |       |   |          | 27                 | 1. | 6,5  | 57                 | 2.       | 20,5               | 27 | 1,1 |
|        |                    |      |       |   |          | 28                 | 1. | 9,0  | 58                 | 2.       | 22,9               | 28 | 1,1 |
|        |                    |      |       |   |          | 29                 | 1. | 11,5 | 59                 | 2.       | 25,4               | 29 | 1,2 |
|        |                    |      |       |   |          | 30                 | 1. | 13,9 | 60                 | 2.       | 27,8               | 30 | 1,2 |



TABLE VI.

Correction additive for the Argument A.

ARGUMENT A.

| M   | 0  | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 0  |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 000 | 22 | 25 | 27  | 27  | 25  | 22  | 19  | 17  | 17  | 19  | 22  | 25  | 27  | 27  | 25  | 22  | 19  | 17  | 17  | 19  | 22 |
| 010 | 23 | 26 | 28  | 28  | 26  | 23  | 20  | 18  | 18  | 20  | 23  | 26  | 28  | 29  | 27  | 24  | 20  | 18  | 18  | 20  | 22 |
| 020 | 24 | 27 | 29  | 30  | 28  | 25  | 21  | 19  | 19  | 21  | 24  | 27  | 29  | 30  | 28  | 25  | 22  | 19  | 19  | 21  | 24 |
| 030 | 25 | 28 | 30  | 31  | 29  | 26  | 23  | 20  | 20  | 22  | 25  | 28  | 30  | 31  | 29  | 26  | 24  | 21  | 20  | 22  | 25 |
| 040 | 26 | 29 | 31  | 32  | 30  | 28  | 24  | 22  | 21  | 23  | 26  | 29  | 32  | 32  | 31  | 28  | 24  | 22  | 21  | 23  | 26 |
| 050 | 27 | 30 | 32  | 33  | 32  | 29  | 26  | 23  | 22  | 24  | 27  | 30  | 32  | 33  | 32  | 29  | 26  | 23  | 22  | 24  | 27 |
| 060 | 27 | 30 | 33  | 34  | 33  | 30  | 27  | 24  | 23  | 25  | 27  | 30  | 33  | 34  | 33  | 30  | 27  | 24  | 24  | 25  | 27 |
| 070 | 28 | 30 | 34  | 35  | 34  | 31  | 28  | 25  | 25  | 26  | 28  | 30  | 34  | 35  | 34  | 32  | 28  | 26  | 25  | 26  | 28 |
| 080 | 29 | 32 | 35  | 36  | 35  | 33  | 30  | 27  | 26  | 26  | 29  | 32  | 35  | 36  | 35  | 33  | 30  | 27  | 26  | 27  | 29 |
| 090 | 30 | 33 | 36  | 37  | 36  | 34  | 31  | 28  | 27  | 27  | 30  | 33  | 36  | 37  | 37  | 34  | 31  | 28  | 27  | 27  | 30 |
| 100 | 31 | 34 | 37  | 38  | 37  | 35  | 32  | 29  | 28  | 28  | 31  | 34  | 37  | 38  | 38  | 35  | 32  | 29  | 28  | 28  | 31 |
| 110 | 31 | 34 | 37  | 39  | 38  | 36  | 33  | 30  | 29  | 29  | 31  | 35  | 37  | 39  | 39  | 36  | 33  | 30  | 29  | 29  | 31 |
| 120 | 32 | 35 | 38  | 40  | 39  | 37  | 34  | 31  | 30  | 30  | 32  | 35  | 38  | 40  | 39  | 37  | 34  | 31  | 30  | 30  | 32 |
| 130 | 33 | 36 | 38  | 40  | 40  | 38  | 35  | 32  | 30  | 31  | 33  | 36  | 39  | 40  | 40  | 38  | 35  | 32  | 30  | 31  | 33 |
| 140 | 33 | 36 | 39  | 41  | 41  | 39  | 36  | 33  | 31  | 31  | 33  | 36  | 39  | 41  | 41  | 39  | 36  | 33  | 31  | 31  | 33 |
| 150 | 34 | 36 | 39  | 41  | 41  | 40  | 37  | 34  | 32  | 32  | 34  | 37  | 40  | 41  | 42  | 40  | 37  | 34  | 32  | 32  | 34 |
| 160 | 34 | 37 | 40  | 42  | 42  | 40  | 38  | 35  | 33  | 33  | 34  | 37  | 40  | 42  | 42  | 41  | 38  | 35  | 33  | 33  | 34 |
| 170 | 35 | 37 | 40  | 42  | 43  | 41  | 38  | 35  | 33  | 33  | 35  | 37  | 40  | 42  | 43  | 41  | 39  | 36  | 34  | 34  | 35 |
| 180 | 35 | 37 | 40  | 42  | 43  | 41  | 39  | 36  | 34  | 34  | 35  | 37  | 40  | 43  | 43  | 42  | 39  | 36  | 34  | 34  | 35 |
| 190 | 35 | 38 | 40  | 43  | 43  | 42  | 40  | 37  | 35  | 34  | 35  | 38  | 41  | 43  | 43  | 42  | 40  | 37  | 35  | 34  | 35 |
| 200 | 35 | 38 | 41  | 43  | 44  | 43  | 40  | 37  | 35  | 34  | 35  | 38  | 41  | 43  | 44  | 43  | 40  | 38  | 35  | 34  | 35 |
| 210 | 36 | 38 | 41  | 43  | 44  | 43  | 41  | 38  | 36  | 35  | 36  | 38  | 41  | 43  | 44  | 43  | 41  | 38  | 36  | 35  | 36 |
| 220 | 36 | 38 | 40  | 43  | 44  | 43  | 41  | 38  | 36  | 35  | 36  | 38  | 40  | 43  | 44  | 43  | 41  | 38  | 36  | 35  | 36 |
| 230 | 36 | 38 | 40  | 43  | 44  | 43  | 41  | 39  | 36  | 35  | 36  | 38  | 40  | 43  | 44  | 43  | 41  | 39  | 37  | 35  | 36 |
| 240 | 36 | 38 | 40  | 42  | 44  | 43  | 41  | 39  | 37  | 35  | 36  | 38  | 40  | 43  | 44  | 43  | 42  | 39  | 37  | 35  | 36 |
| 250 | 36 | 37 | 40  | 42  | 43  | 43  | 42  | 39  | 37  | 35  | 36  | 37  | 40  | 42  | 44  | 43  | 42  | 39  | 37  | 35  | 36 |
| 260 | 36 | 37 | 40  | 42  | 43  | 43  | 42  | 39  | 37  | 35  | 36  | 37  | 40  | 42  | 43  | 43  | 42  | 39  | 37  | 36  | 36 |
| 270 | 35 | 37 | 39  | 41  | 43  | 43  | 42  | 39  | 37  | 35  | 35  | 37  | 39  | 42  | 43  | 43  | 42  | 39  | 37  | 36  | 35 |
| 280 | 35 | 36 | 39  | 41  | 42  | 43  | 41  | 39  | 37  | 35  | 35  | 36  | 39  | 41  | 43  | 43  | 41  | 39  | 37  | 35  | 35 |
| 290 | 35 | 36 | 38  | 40  | 42  | 42  | 41  | 39  | 37  | 35  | 35  | 36  | 38  | 41  | 42  | 42  | 41  | 39  | 37  | 35  | 35 |
| 300 | 35 | 36 | 38  | 40  | 41  | 42  | 41  | 39  | 37  | 35  | 35  | 36  | 38  | 40  | 42  | 42  | 41  | 39  | 37  | 35  | 35 |
| 310 | 34 | 35 | 37  | 39  | 41  | 41  | 41  | 39  | 36  | 35  | 34  | 35  | 37  | 39  | 41  | 42  | 41  | 39  | 37  | 35  | 34 |
| 320 | 34 | 35 | 36  | 38  | 40  | 41  | 40  | 38  | 36  | 35  | 34  | 35  | 36  | 39  | 40  | 41  | 40  | 39  | 36  | 35  | 34 |
| 330 | 33 | 34 | 36  | 38  | 39  | 40  | 40  | 38  | 36  | 34  | 33  | 34  | 36  | 38  | 40  | 40  | 40  | 38  | 36  | 34  | 33 |
| 340 | 33 | 33 | 35  | 37  | 39  | 39  | 39  | 38  | 36  | 34  | 33  | 33  | 35  | 37  | 39  | 40  | 39  | 38  | 36  | 34  | 33 |
| 350 | 33 | 33 | 34  | 36  | 38  | 39  | 38  | 37  | 35  | 33  | 33  | 33  | 34  | 36  | 38  | 39  | 39  | 37  | 35  | 33  | 33 |
| 360 | 32 | 32 | 33  | 35  | 37  | 38  | 38  | 36  | 35  | 33  | 32  | 32  | 33  | 35  | 37  | 38  | 38  | 37  | 35  | 33  | 32 |
| 370 | 31 | 31 | 32  | 34  | 36  | 37  | 37  | 36  | 34  | 32  | 31  | 31  | 32  | 34  | 36  | 37  | 37  | 36  | 34  | 33  | 31 |
| 380 | 31 | 30 | 31  | 33  | 35  | 36  | 36  | 35  | 34  | 32  | 31  | 31  | 32  | 33  | 35  | 36  | 36  | 35  | 34  | 32  | 31 |
| 390 | 30 | 30 | 31  | 32  | 34  | 35  | 35  | 34  | 33  | 31  | 30  | 30  | 31  | 32  | 34  | 35  | 35  | 35  | 33  | 31  | 30 |
| 400 | 29 | 29 | 30  | 31  | 33  | 34  | 34  | 34  | 32  | 31  | 29  | 29  | 30  | 31  | 33  | 34  | 34  | 34  | 32  | 31  | 29 |
| 410 | 29 | 28 | 29  | 30  | 31  | 33  | 33  | 33  | 32  | 30  | 29  | 28  | 29  | 30  | 32  | 33  | 33  | 33  | 32  | 30  | 29 |
| 420 | 28 | 27 | 28  | 29  | 30  | 32  | 32  | 32  | 31  | 29  | 28  | 27  | 28  | 29  | 31  | 32  | 32  | 32  | 31  | 29  | 28 |
| 430 | 27 | 27 | 27  | 28  | 29  | 31  | 31  | 31  | 30  | 29  | 27  | 27  | 27  | 28  | 29  | 31  | 31  | 31  | 30  | 29  | 27 |
| 440 | 27 | 26 | 26  | 27  | 28  | 29  | 30  | 30  | 29  | 28  | 27  | 26  | 26  | 27  | 28  | 30  | 30  | 30  | 29  | 28  | 27 |
| 450 | 26 | 25 | 25  | 25  | 27  | 28  | 29  | 29  | 29  | 27  | 26  | 25  | 25  | 26  | 27  | 28  | 29  | 29  | 29  | 27  | 26 |
| 460 | 25 | 24 | 24  | 24  | 26  | 27  | 28  | 28  | 28  | 26  | 25  | 24  | 24  | 25  | 26  | 27  | 28  | 28  | 28  | 27  | 25 |
| 470 | 25 | 23 | 23  | 23  | 24  | 26  | 27  | 27  | 27  | 26  | 25  | 23  | 23  | 23  | 25  | 26  | 27  | 27  | 27  | 26  | 25 |
| 480 | 24 | 22 | 22  | 22  | 23  | 24  | 26  | 26  | 26  | 25  | 24  | 22  | 22  | 22  | 23  | 25  | 26  | 26  | 26  | 25  | 24 |
| 490 | 23 | 21 | 21  | 21  | 22  | 23  | 24  | 25  | 25  | 24  | 23  | 22  | 21  | 21  | 22  | 23  | 25  | 25  | 25  | 24  | 23 |
| 500 | 22 | 21 | 20  | 20  | 21  | 22  | 23  | 24  | 24  | 23  | 22  | 21  | 20  | 20  | 21  | 22  | 23  | 24  | 24  | 23  | 22 |

The constant quantity 22 has been subtracted from the Epochs of A.



TABLE VI.

Correction additive for the Argument A.

ARGUMENT A.

| M   | 0  | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 0  |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 500 | 22 | 21 | 20  | 20  | 21  | 22  | 23  | 24  | 24  | 23  | 22  | 21  | 20  | 20  | 21  | 22  | 23  | 24  | 24  | 23  | 22 |
| 510 | 21 | 20 | 19  | 19  | 19  | 21  | 22  | 23  | 23  | 22  | 21  | 20  | 19  | 19  | 20  | 21  | 22  | 23  | 23  | 23  | 21 |
| 520 | 20 | 19 | 18  | 18  | 18  | 19  | 21  | 22  | 22  | 22  | 20  | 19  | 18  | 18  | 18  | 20  | 21  | 22  | 22  | 22  | 20 |
| 530 | 20 | 18 | 17  | 17  | 17  | 18  | 19  | 21  | 21  | 21  | 20  | 18  | 17  | 17  | 17  | 18  | 20  | 21  | 21  | 21  | 20 |
| 540 | 19 | 17 | 16  | 16  | 16  | 17  | 18  | 20  | 20  | 20  | 19  | 17  | 16  | 16  | 16  | 17  | 18  | 20  | 20  | 20  | 19 |
| 550 | 18 | 17 | 15  | 15  | 15  | 16  | 17  | 18  | 19  | 19  | 18  | 17  | 15  | 15  | 15  | 16  | 17  | 18  | 19  | 19  | 18 |
| 560 | 17 | 16 | 15  | 14  | 14  | 15  | 16  | 17  | 18  | 18  | 17  | 16  | 15  | 14  | 14  | 15  | 16  | 17  | 18  | 18  | 17 |
| 570 | 17 | 15 | 14  | 13  | 13  | 14  | 15  | 16  | 17  | 17  | 17  | 15  | 14  | 13  | 13  | 13  | 15  | 16  | 17  | 17  | 17 |
| 580 | 16 | 15 | 13  | 12  | 12  | 13  | 13  | 15  | 16  | 16  | 16  | 15  | 13  | 12  | 12  | 12  | 14  | 15  | 16  | 17  | 16 |
| 590 | 16 | 14 | 12  | 11  | 11  | 11  | 12  | 14  | 15  | 16  | 15  | 14  | 12  | 11  | 11  | 11  | 12  | 14  | 15  | 16  | 15 |
| 600 | 15 | 13 | 11  | 10  | 10  | 10  | 11  | 13  | 14  | 15  | 14  | 13  | 12  | 10  | 10  | 10  | 11  | 13  | 14  | 15  | 14 |
| 610 | 14 | 13 | 11  | 9   | 9   | 9   | 10  | 12  | 13  | 14  | 14  | 13  | 11  | 10  | 9   | 9   | 10  | 12  | 13  | 14  | 14 |
| 620 | 14 | 12 | 10  | 9   | 8   | 9   | 9   | 11  | 12  | 13  | 13  | 12  | 10  | 9   | 8   | 8   | 9   | 11  | 13  | 13  | 13 |
| 630 | 13 | 12 | 10  | 8   | 7   | 8   | 8   | 10  | 12  | 13  | 13  | 12  | 10  | 8   | 7   | 7   | 8   | 10  | 12  | 13  | 12 |
| 640 | 13 | 11 | 9   | 7   | 6   | 7   | 7   | 9   | 11  | 12  | 12  | 11  | 9   | 7   | 6   | 6   | 7   | 9   | 11  | 12  | 12 |
| 650 | 12 | 11 | 9   | 7   | 5   | 6   | 6   | 8   | 10  | 11  | 11  | 11  | 9   | 7   | 6   | 5   | 6   | 8   | 10  | 11  | 11 |
| 660 | 11 | 10 | 8   | 6   | 5   | 5   | 5   | 7   | 9   | 11  | 11  | 10  | 8   | 6   | 5   | 5   | 5   | 7   | 9   | 11  | 11 |
| 670 | 11 | 10 | 8   | 6   | 4   | 4   | 4   | 6   | 8   | 10  | 10  | 10  | 8   | 6   | 4   | 4   | 5   | 6   | 8   | 10  | 10 |
| 680 | 10 | 9  | 8   | 6   | 4   | 4   | 4   | 5   | 8   | 9   | 10  | 9   | 8   | 6   | 4   | 3   | 4   | 6   | 8   | 9   | 10 |
| 690 | 10 | 9  | 7   | 5   | 3   | 3   | 3   | 5   | 7   | 9   | 10  | 9   | 7   | 5   | 3   | 3   | 3   | 5   | 7   | 9   | 10 |
| 700 | 9  | 9  | 7   | 5   | 3   | 3   | 2   | 4   | 6   | 8   | 9   | 9   | 7   | 5   | 3   | 2   | 3   | 4   | 6   | 8   | 9  |
| 710 | 9  | 9  | 7   | 5   | 3   | 3   | 2   | 3   | 6   | 8   | 9   | 9   | 7   | 5   | 3   | 2   | 2   | 4   | 6   | 8   | 9  |
| 720 | 9  | 9  | 7   | 5   | 3   | 3   | 1   | 3   | 5   | 7   | 9   | 9   | 7   | 5   | 3   | 1   | 2   | 3   | 5   | 8   | 9  |
| 730 | 9  | 8  | 7   | 5   | 3   | 2   | 1   | 2   | 5   | 7   | 9   | 9   | 7   | 5   | 2   | 1   | 1   | 3   | 5   | 7   | 9  |
| 740 | 8  | 8  | 7   | 5   | 2   | 2   | 1   | 2   | 4   | 7   | 8   | 8   | 7   | 5   | 2   | 1   | 1   | 2   | 4   | 7   | 8  |
| 750 | 8  | 8  | 7   | 5   | 2   | 1   | 0   | 2   | 4   | 7   | 8   | 9   | 7   | 5   | 2   | 1   | 0   | 2   | 4   | 7   | 8  |
| 760 | 8  | 9  | 7   | 5   | 2   | 1   | 0   | 1   | 4   | 6   | 8   | 9   | 7   | 5   | 3   | 1   | 0   | 2   | 4   | 6   | 8  |
| 770 | 8  | 9  | 8   | 5   | 3   | 1   | 0   | 1   | 4   | 6   | 8   | 9   | 8   | 5   | 3   | 1   | 0   | 1   | 4   | 6   | 8  |
| 780 | 8  | 9  | 8   | 6   | 3   | 1   | 0   | 1   | 3   | 6   | 8   | 9   | 8   | 6   | 3   | 1   | 0   | 1   | 4   | 6   | 8  |
| 790 | 8  | 9  | 8   | 6   | 3   | 1   | 0   | 1   | 3   | 6   | 8   | 9   | 8   | 6   | 3   | 1   | 0   | 1   | 3   | 6   | 8  |
| 800 | 9  | 10 | 9   | 6   | 4   | 2   | 0   | 1   | 3   | 6   | 9   | 10  | 9   | 7   | 4   | 2   | 0   | 1   | 3   | 6   | 9  |
| 810 | 9  | 10 | 9   | 7   | 4   | 2   | 1   | 1   | 3   | 6   | 9   | 10  | 9   | 7   | 4   | 2   | 1   | 1   | 4   | 6   | 9  |
| 820 | 9  | 10 | 10  | 8   | 5   | 3   | 1   | 1   | 4   | 6   | 9   | 10  | 10  | 8   | 5   | 2   | 1   | 2   | 4   | 7   | 9  |
| 830 | 10 | 11 | 10  | 8   | 6   | 3   | 1   | 2   | 4   | 7   | 9   | 11  | 11  | 8   | 6   | 3   | 2   | 2   | 4   | 7   | 9  |
| 840 | 10 | 11 | 11  | 9   | 6   | 4   | 2   | 2   | 4   | 7   | 10  | 11  | 11  | 9   | 6   | 4   | 2   | 2   | 4   | 7   | 10 |
| 850 | 10 | 12 | 12  | 10  | 7   | 4   | 2   | 2   | 4   | 7   | 10  | 12  | 12  | 10  | 7   | 4   | 3   | 3   | 5   | 7   | 10 |
| 860 | 11 | 13 | 13  | 11  | 8   | 5   | 3   | 3   | 5   | 8   | 11  | 13  | 13  | 11  | 8   | 5   | 3   | 3   | 5   | 8   | 11 |
| 870 | 11 | 13 | 14  | 12  | 9   | 6   | 4   | 4   | 5   | 8   | 11  | 13  | 14  | 12  | 9   | 6   | 4   | 4   | 5   | 8   | 11 |
| 880 | 12 | 14 | 14  | 13  | 10  | 7   | 5   | 4   | 6   | 9   | 12  | 14  | 14  | 13  | 10  | 7   | 5   | 4   | 6   | 9   | 12 |
| 890 | 13 | 15 | 15  | 14  | 11  | 8   | 6   | 5   | 7   | 9   | 12  | 15  | 15  | 14  | 10  | 8   | 6   | 5   | 7   | 10  | 13 |
| 900 | 13 | 16 | 16  | 15  | 12  | 10  | 7   | 6   | 7   | 10  | 13  | 16  | 16  | 15  | 12  | 9   | 7   | 6   | 7   | 10  | 13 |
| 910 | 14 | 17 | 17  | 16  | 13  | 10  | 8   | 7   | 8   | 11  | 14  | 17  | 17  | 16  | 13  | 10  | 8   | 7   | 8   | 11  | 14 |
| 920 | 15 | 17 | 18  | 17  | 14  | 11  | 9   | 8   | 9   | 12  | 15  | 17  | 18  | 17  | 15  | 11  | 9   | 8   | 9   | 12  | 15 |
| 930 | 16 | 18 | 19  | 18  | 16  | 13  | 10  | 9   | 10  | 12  | 16  | 18  | 19  | 18  | 16  | 13  | 10  | 9   | 10  | 12  | 16 |
| 940 | 16 | 19 | 20  | 20  | 17  | 14  | 11  | 10  | 11  | 13  | 16  | 19  | 21  | 20  | 17  | 14  | 11  | 10  | 11  | 13  | 16 |
| 950 | 17 | 20 | 22  | 21  | 18  | 15  | 12  | 11  | 11  | 14  | 17  | 20  | 22  | 21  | 18  | 15  | 12  | 11  | 12  | 14  | 17 |
| 960 | 18 | 21 | 23  | 22  | 20  | 16  | 13  | 12  | 12  | 15  | 18  | 21  | 23  | 22  | 20  | 16  | 13  | 12  | 13  | 15  | 18 |
| 970 | 19 | 22 | 24  | 23  | 21  | 18  | 15  | 13  | 13  | 16  | 19  | 22  | 24  | 24  | 21  | 18  | 15  | 13  | 14  | 16  | 19 |
| 980 | 20 | 23 | 25  | 25  | 22  | 19  | 16  | 14  | 15  | 17  | 20  | 23  | 25  | 25  | 23  | 19  | 16  | 14  | 15  | 17  | 20 |
| 990 | 21 | 24 | 26  | 26  | 24  | 20  | 17  | 15  | 16  | 18  | 21  | 24  | 26  | 26  | 24  | 21  | 17  | 16  | 16  | 18  | 21 |
| 0   | 22 | 25 | 27  | 27  | 25  | 22  | 19  | 17  | 17  | 19  | 22  | 25  | 27  | 27  | 25  | 22  | 19  | 17  | 17  | 19  | 22 |

The constant quantity 22 has been subtracted from the Epochs of A.



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— |
|------------------|------------------|------------|------------|------------------|----------------|------------|------------|------------------|----------------|------------|------------|
| S. D. M.         | S. D. M. S.      | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         |
| 0. 0. 0          | 11. 29. 59. 15,0 | 20,6       | 0,00       | 0. 8. 0          | 0. 0. 15. 39,5 | 20,3       | 2,49       | 0. 16. 0         | 0. 0. 31. 43,5 | 19,8       | 4,93       |
| 0. 0. 10         | 11. 29. 59. 35,6 | 20,6       | 0,05       | 0. 8. 10         | 0. 0. 15. 59,8 | 20,3       | 2,54       | 0. 16. 10        | 0. 0. 32. 3,3  | 19,7       | 4,98       |
| 0. 0. 20         | 11. 29. 59. 56,2 | 20,5       | 0,10       | 0. 8. 20         | 0. 0. 16. 20,1 | 20,4       | 2,60       | 0. 16. 20        | 0. 0. 32. 23,0 | 19,7       | 5,03       |
| 0. 0. 30         | 0. 0. 0. 16,7    | 20,6       | 0,16       | 0. 8. 30         | 0. 0. 16. 40,5 | 20,4       | 2,65       | 0. 16. 30        | 0. 0. 32. 42,7 | 19,7       | 5,08       |
| 0. 0. 40         | 0. 0. 0. 37,3    | 20,6       | 0,21       | 0. 8. 40         | 0. 0. 17. 0,9  | 20,3       | 2,70       | 0. 16. 40        | 0. 0. 33. 2,4  | 19,6       | 5,13       |
| 0. 0. 50         | 0. 0. 0. 57,9    | 20,6       | 0,26       | 0. 8. 50         | 0. 0. 17. 21,2 | 20,3       | 2,75       | 0. 16. 50        | 0. 0. 33. 22,0 | 19,6       | 5,18       |
| 0. 1. 0          | 0. 0. 1. 18,5    | 20,6       | 0,31       | 0. 9. 0          | 0. 0. 17. 41,5 | 20,3       | 2,80       | 0. 17. 0         | 0. 0. 33. 41,6 | 19,6       | 5,23       |
| 0. 1. 10         | 0. 0. 1. 39,1    | 20,6       | 0,36       | 0. 9. 10         | 0. 0. 18. 1,8  | 20,3       | 2,85       | 0. 17. 10        | 0. 0. 34. 1,2  | 19,6       | 5,28       |
| 0. 1. 20         | 0. 0. 1. 59,7    | 20,6       | 0,42       | 0. 9. 20         | 0. 0. 18. 22,1 | 20,3       | 2,90       | 0. 17. 20        | 0. 0. 34. 20,8 | 19,6       | 5,33       |
| 0. 1. 30         | 0. 0. 2. 20,3    | 20,5       | 0,47       | 0. 9. 30         | 0. 0. 18. 42,4 | 20,3       | 2,96       | 0. 17. 30        | 0. 0. 34. 40,4 | 19,6       | 5,38       |
| 0. 1. 40         | 0. 0. 2. 40,8    | 20,5       | 0,52       | 0. 9. 40         | 0. 0. 19. 2,7  | 20,3       | 3,01       | 0. 17. 40        | 0. 0. 35. 0,0  | 19,6       | 5,43       |
| 0. 1. 50         | 0. 0. 3. 1,4     | 20,6       | 0,57       | 0. 9. 50         | 0. 0. 19. 22,9 | 20,2       | 3,06       | 0. 17. 50        | 0. 0. 35. 19,5 | 19,5       | 5,48       |
| 0. 2. 0          | 0. 0. 3. 21,9    | 20,5       | 0,62       | 0. 10. 0         | 0. 0. 19. 43,2 | 20,3       | 3,11       | 0. 18. 0         | 0. 0. 35. 39,0 | 19,6       | 5,52       |
| 0. 2. 10         | 0. 0. 3. 42,5    | 20,6       | 0,68       | 0. 10. 10        | 0. 0. 20. 3,4  | 20,2       | 3,16       | 0. 18. 10        | 0. 0. 35. 58,5 | 19,5       | 5,57       |
| 0. 2. 20         | 0. 0. 4. 3,0     | 20,5       | 0,73       | 0. 10. 20        | 0. 0. 20. 23,7 | 20,3       | 3,21       | 0. 18. 20        | 0. 0. 36. 18,0 | 19,5       | 5,62       |
| 0. 2. 30         | 0. 0. 4. 23,5    | 20,5       | 0,78       | 0. 10. 30        | 0. 0. 20. 43,9 | 20,2       | 3,26       | 0. 18. 30        | 0. 0. 36. 37,4 | 19,4       | 5,67       |
| 0. 2. 40         | 0. 0. 4. 44,1    | 20,6       | 0,83       | 0. 10. 40        | 0. 0. 21. 4,1  | 20,2       | 3,31       | 0. 18. 40        | 0. 0. 36. 56,9 | 19,5       | 5,71       |
| 0. 2. 50         | 0. 0. 5. 4,7     | 20,6       | 0,89       | 0. 10. 50        | 0. 0. 21. 24,3 | 20,2       | 3,36       | 0. 18. 50        | 0. 0. 37. 16,3 | 19,4       | 5,77       |
| 0. 3. 0          | 0. 0. 5. 25,3    | 20,6       | 0,94       | 0. 11. 0         | 0. 0. 21. 44,5 | 20,2       | 3,42       | 0. 19. 0         | 0. 0. 37. 35,7 | 19,4       | 5,82       |
| 0. 3. 10         | 0. 0. 5. 45,8    | 20,5       | 0,99       | 0. 11. 10        | 0. 0. 22. 4,7  | 20,2       | 3,47       | 0. 19. 10        | 0. 0. 37. 55,1 | 19,4       | 5,87       |
| 0. 3. 20         | 0. 0. 6. 6,4     | 20,6       | 1,04       | 0. 11. 20        | 0. 0. 22. 24,8 | 20,1       | 3,52       | 0. 19. 20        | 0. 0. 38. 14,5 | 19,4       | 5,92       |
| 0. 3. 30         | 0. 0. 6. 26,9    | 20,5       | 1,09       | 0. 11. 30        | 0. 0. 22. 44,9 | 20,1       | 3,57       | 0. 19. 30        | 0. 0. 38. 33,8 | 19,3       | 5,97       |
| 0. 3. 40         | 0. 0. 6. 47,4    | 20,5       | 1,14       | 0. 11. 40        | 0. 0. 23. 5,1  | 20,2       | 3,62       | 0. 19. 40        | 0. 0. 38. 53,1 | 19,3       | 6,02       |
| 0. 3. 50         | 0. 0. 7. 8,0     | 20,6       | 1,19       | 0. 11. 50        | 0. 0. 23. 25,2 | 20,1       | 3,67       | 0. 19. 50        | 0. 0. 39. 12,4 | 19,3       | 6,06       |
| 0. 4. 0          | 0. 0. 7. 28,5    | 20,5       | 1,24       | 0. 12. 0         | 0. 0. 23. 45,3 | 20,1       | 3,72       | 0. 20. 0         | 0. 0. 39. 31,7 | 19,3       | 6,11       |
| 0. 4. 10         | 0. 0. 7. 49,0    | 20,5       | 1,29       | 0. 12. 10        | 0. 0. 24. 5,4  | 20,1       | 3,77       | 0. 20. 10        | 0. 0. 39. 51,0 | 19,3       | 6,16       |
| 0. 4. 20         | 0. 0. 8. 9,5     | 20,5       | 1,35       | 0. 12. 20        | 0. 0. 24. 25,5 | 20,1       | 3,82       | 0. 20. 20        | 0. 0. 40. 10,2 | 19,2       | 6,21       |
| 0. 4. 30         | 0. 0. 8. 30,0    | 20,5       | 1,40       | 0. 12. 30        | 0. 0. 24. 45,5 | 20,0       | 3,87       | 0. 20. 30        | 0. 0. 40. 29,4 | 19,2       | 6,26       |
| 0. 4. 40         | 0. 0. 8. 50,5    | 20,5       | 1,46       | 0. 12. 40        | 0. 0. 25. 5,6  | 20,1       | 3,93       | 0. 20. 40        | 0. 0. 40. 48,6 | 19,2       | 6,31       |
| 0. 4. 50         | 0. 0. 9. 11,0    | 20,5       | 1,51       | 0. 12. 50        | 0. 0. 25. 25,6 | 20,0       | 3,98       | 0. 20. 50        | 0. 0. 41. 07,7 | 19,1       | 6,35       |
| 0. 5. 0          | 0. 0. 9. 31,6    | 20,6       | 1,56       | 0. 13. 0         | 0. 0. 25. 45,7 | 20,1       | 4,03       | 0. 21. 0         | 0. 0. 41. 26,9 | 19,2       | 6,40       |
| 0. 5. 10         | 0. 0. 9. 52,1    | 20,5       | 1,61       | 0. 13. 10        | 0. 0. 26. 5,7  | 20,0       | 4,08       | 0. 21. 10        | 0. 0. 41. 46,0 | 19,1       | 6,45       |
| 0. 5. 20         | 0. 0. 10. 12,5   | 20,4       | 1,67       | 0. 13. 20        | 0. 0. 26. 25,7 | 20,0       | 4,13       | 0. 21. 20        | 0. 0. 42. 05,1 | 19,1       | 6,50       |
| 0. 5. 30         | 0. 0. 10. 33,0   | 20,5       | 1,72       | 0. 13. 30        | 0. 0. 26. 45,7 | 20,0       | 4,18       | 0. 21. 30        | 0. 0. 42. 24,1 | 19,0       | 6,55       |
| 0. 5. 40         | 0. 0. 10. 53,5   | 20,5       | 1,77       | 0. 13. 40        | 0. 0. 27. 5,7  | 20,0       | 4,23       | 0. 21. 40        | 0. 0. 42. 43,2 | 19,1       | 6,59       |
| 0. 5. 50         | 0. 0. 11. 14,0   | 20,5       | 1,82       | 0. 13. 50        | 0. 0. 27. 25,6 | 19,9       | 4,28       | 0. 21. 50        | 0. 0. 43. 02,2 | 19,0       | 6,65       |
| 0. 6. 0          | 0. 0. 11. 34,5   | 20,5       | 1,87       | 0. 14. 0         | 0. 0. 27. 45,6 | 20,0       | 4,33       | 0. 22. 0         | 0. 0. 43. 21,2 | 19,0       | 6,69       |
| 0. 6. 10         | 0. 0. 11. 54,9   | 20,4       | 1,92       | 0. 14. 10        | 0. 0. 28. 5,5  | 19,9       | 4,38       | 0. 22. 10        | 0. 0. 43. 40,2 | 19,0       | 6,74       |
| 0. 6. 20         | 0. 0. 12. 15,3   | 20,4       | 1,98       | 0. 14. 20        | 0. 0. 28. 25,4 | 19,9       | 4,43       | 0. 22. 20        | 0. 0. 43. 59,1 | 18,9       | 6,79       |
| 0. 6. 30         | 0. 0. 12. 35,8   | 20,5       | 2,03       | 0. 14. 30        | 0. 0. 28. 45,3 | 19,9       | 4,48       | 0. 22. 30        | 0. 0. 44. 18,0 | 18,9       | 6,83       |
| 0. 6. 40         | 0. 0. 12. 56,3   | 20,5       | 2,08       | 0. 14. 40        | 0. 0. 29. 5,1  | 19,8       | 4,53       | 0. 22. 40        | 0. 0. 44. 36,9 | 18,9       | 6,88       |
| 0. 6. 50         | 0. 0. 13. 16,7   | 20,4       | 2,13       | 0. 14. 50        | 0. 0. 29. 25,0 | 19,9       | 4,58       | 0. 22. 50        | 0. 0. 44. 55,8 | 18,9       | 6,93       |
| 0. 7. 0          | 0. 0. 13. 37,1   | 20,4       | 2,18       | 0. 15. 0         | 0. 0. 29. 44,8 | 19,8       | 4,63       | 0. 23. 0         | 0. 0. 45. 14,7 | 18,9       | 6,98       |
| 0. 7. 10         | 0. 0. 13. 57,5   | 20,4       | 2,23       | 0. 15. 10        | 0. 0. 30. 4,7  | 19,9       | 4,68       | 0. 23. 10        | 0. 0. 45. 33,6 | 18,9       | 7,02       |
| 0. 7. 20         | 0. 0. 14. 17,9   | 20,4       | 2,29       | 0. 15. 20        | 0. 0. 30. 24,5 | 19,8       | 4,73       | 0. 23. 20        | 0. 0. 45. 52,4 | 18,8       | 7,07       |
| 0. 7. 30         | 0. 0. 14. 38,3   | 20,4       | 2,34       | 0. 15. 30        | 0. 0. 30. 44,3 | 19,8       | 4,78       | 0. 23. 30        | 0. 0. 46. 11,1 | 18,7       | 7,12       |
| 0. 7. 40         | 0. 0. 14. 58,7   | 20,4       | 2,39       | 0. 15. 40        | 0. 0. 31. 4,0  | 19,7       | 4,83       | 0. 23. 40        | 0. 0. 46. 29,9 | 18,8       | 7,17       |
| 0. 7. 50         | 0. 0. 15. 19,1   | 20,4       | 2,44       | 0. 15. 50        | 0. 0. 31. 23,8 | 19,8       | 4,88       | 0. 23. 50        | 0. 0. 46. 48,6 | 18,7       | 7,21       |
| 0. 8. 0          | 0. 0. 15. 39,5   | 20,4       | 2,49       | 0. 16. 0         | 0. 0. 31. 43,5 | 19,7       | 4,93       | 0. 24. 0         | 0. 0. 47. 7,3  | 18,7       | 7,26       |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— |
|------------------|----------------|------------|------------|------------------|----------------|------------|------------|------------------|----------------|------------|------------|
| S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         |
| O. 24. 0         | O. O. 47. 7,3  | 18,7       | 7,26       | I. 2. 0          | O. I. 1. 31,9  | 17,3       | 9,43       | I. 10. 0         | O. I. 14. 39,8 | 15,5       | 11,40      |
| O. 24. 10        | O. O. 47. 26,0 | 18,7       | 7,31       | I. 2. 10         | O. I. 1. 49,2  | 17,2       | 9,48       | I. 10. 10        | O. I. 14. 55,3 | 15,4       | 11,44      |
| O. 24. 20        | O. O. 47. 44,7 | 18,6       | 7,35       | I. 2. 20         | O. I. 2. 06,4  | 17,2       | 9,52       | I. 10. 20        | O. I. 15. 10,7 | 15,4       | 11,48      |
| O. 24. 30        | O. O. 48. 3,3  | 18,6       | 7,40       | I. 2. 30         | O. I. 2. 23,6  | 17,1       | 9,56       | I. 10. 30        | O. I. 15. 26,1 | 15,4       | 11,52      |
| O. 24. 40        | O. O. 48. 21,9 | 18,6       | 7,45       | I. 2. 40         | O. I. 2. 40,7  | 17,1       | 9,61       | I. 10. 40        | O. I. 15. 41,5 | 15,3       | 11,55      |
| O. 24. 50        | O. O. 48. 40,5 | 18,5       | 7,50       | I. 2. 50         | O. I. 2. 57,8  | 17,1       | 9,65       | I. 10. 50        | O. I. 15. 56,8 | 15,3       | 11,59      |
| O. 25. 0         | O. O. 48. 59,0 | 18,6       | 7,54       | I. 3. 0          | O. I. 3. 14,9  | 17,1       | 9,70       | I. 11. 0         | O. I. 16. 12,1 | 15,2       | 11,63      |
| O. 25. 10        | O. O. 49. 17,6 | 18,5       | 7,59       | I. 3. 10         | O. I. 3. 32,0  | 17,0       | 9,74       | I. 11. 10        | O. I. 16. 27,3 | 15,2       | 11,67      |
| O. 25. 20        | O. O. 49. 36,1 | 18,4       | 7,64       | I. 3. 20         | O. I. 3. 49,0  | 17,0       | 9,78       | I. 11. 20        | O. I. 16. 42,5 | 15,1       | 11,71      |
| O. 25. 30        | O. O. 49. 54,5 | 18,4       | 7,68       | I. 3. 30         | O. I. 4. 6,0   | 16,9       | 9,82       | I. 11. 30        | O. I. 16. 57,6 | 15,2       | 11,74      |
| O. 25. 40        | O. O. 50. 12,9 | 18,4       | 7,73       | I. 3. 40         | O. I. 4. 22,9  | 16,9       | 9,86       | I. 11. 40        | O. I. 17. 12,8 | 15,1       | 11,78      |
| O. 25. 50        | O. O. 50. 31,3 | 18,4       | 7,77       | I. 3. 50         | O. I. 4. 39,8  | 16,9       | 9,90       | I. 11. 50        | O. I. 17. 27,9 | 15,0       | 11,82      |
| O. 26. 0         | O. O. 50. 49,7 | 18,4       | 7,82       | I. 4. 0          | O. I. 4. 56,7  | 16,9       | 9,95       | I. 12. 0         | O. I. 17. 42,9 | 15,0       | 11,86      |
| O. 26. 10        | O. O. 51. 8,1  | 18,3       | 7,86       | I. 4. 10         | O. I. 5. 13,6  | 16,8       | 9,99       | I. 12. 10        | O. I. 17. 57,9 | 14,9       | 11,89      |
| O. 26. 20        | O. O. 51. 26,4 | 18,3       | 7,91       | I. 4. 20         | O. I. 5. 30,4  | 16,7       | 10,03      | I. 12. 20        | O. I. 18. 12,8 | 14,9       | 11,93      |
| O. 26. 30        | O. O. 51. 44,7 | 18,3       | 7,95       | I. 4. 30         | O. I. 5. 47,1  | 16,7       | 10,07      | I. 12. 30        | O. I. 18. 27,7 | 14,9       | 11,97      |
| O. 26. 40        | O. O. 52. 3,0  | 18,2       | 8,00       | I. 4. 40         | O. I. 6. 3,8   | 16,7       | 10,11      | I. 12. 40        | O. I. 18. 42,6 | 14,8       | 12,00      |
| O. 26. 50        | O. O. 52. 21,2 | 18,3       | 8,05       | I. 4. 50         | O. I. 6. 20,5  | 16,7       | 10,16      | I. 12. 50        | O. I. 18. 57,4 | 14,8       | 12,04      |
| O. 27. 0         | O. O. 52. 39,5 | 18,2       | 8,10       | I. 5. 0          | O. I. 6. 37,2  | 16,7       | 10,20      | I. 13. 0         | O. I. 19. 12,2 | 14,7       | 12,08      |
| O. 27. 10        | O. O. 52. 57,7 | 18,1       | 8,14       | I. 5. 10         | O. I. 6. 53,9  | 16,6       | 10,24      | I. 13. 10        | O. I. 19. 26,9 | 14,7       | 12,11      |
| O. 27. 20        | O. O. 53. 15,8 | 18,1       | 8,19       | I. 5. 20         | O. I. 7. 10,5  | 16,5       | 10,28      | I. 13. 20        | O. I. 19. 41,6 | 14,7       | 12,15      |
| O. 27. 30        | O. O. 53. 33,9 | 18,1       | 8,23       | I. 5. 30         | O. I. 7. 27,0  | 16,5       | 10,32      | I. 13. 30        | O. I. 19. 56,3 | 14,6       | 12,19      |
| O. 27. 40        | O. O. 53. 52,0 | 18,1       | 8,28       | I. 5. 40         | O. I. 7. 43,5  | 16,5       | 10,36      | I. 13. 40        | O. I. 20. 10,9 | 14,6       | 12,22      |
| O. 27. 50        | O. O. 54. 10,1 | 18,1       | 8,32       | I. 5. 50         | O. I. 8. 0,0   | 16,5       | 10,40      | I. 13. 50        | O. I. 20. 25,5 | 14,5       | 12,26      |
| O. 28. 0         | O. O. 54. 28,2 | 18,0       | 8,37       | I. 6. 0          | O. I. 8. 16,5  | 16,4       | 10,44      | I. 14. 0         | O. I. 20. 40,0 | 14,5       | 12,30      |
| O. 28. 10        | O. O. 54. 46,2 | 18,0       | 8,41       | I. 6. 10         | O. I. 8. 32,9  | 16,3       | 10,49      | I. 14. 10        | O. I. 20. 54,5 | 14,4       | 12,33      |
| O. 28. 20        | O. O. 55. 4,2  | 17,9       | 8,46       | I. 6. 20         | O. I. 8. 49,2  | 16,4       | 10,53      | I. 14. 20        | O. I. 21. 08,9 | 14,4       | 12,37      |
| O. 28. 30        | O. O. 55. 22,1 | 17,9       | 8,50       | I. 6. 30         | O. I. 9. 5,6   | 16,3       | 10,57      | I. 14. 30        | O. I. 21. 23,3 | 14,4       | 12,40      |
| O. 28. 40        | O. O. 55. 40,0 | 17,9       | 8,55       | I. 6. 40         | O. I. 9. 21,9  | 16,3       | 10,61      | I. 14. 40        | O. I. 21. 37,7 | 14,3       | 12,44      |
| O. 28. 50        | O. O. 55. 57,9 | 17,9       | 8,59       | I. 6. 50         | O. I. 9. 38,2  | 16,2       | 10,65      | I. 14. 50        | O. I. 21. 52,0 | 14,3       | 12,47      |
| O. 29. 0         | O. O. 56. 15,8 | 17,8       | 8,64       | I. 7. 0          | O. I. 9. 54,4  | 16,2       | 10,69      | I. 15. 0         | O. I. 22. 6,3  | 14,2       | 12,51      |
| O. 29. 10        | O. O. 56. 33,6 | 17,8       | 8,68       | I. 7. 10         | O. I. 10. 10,6 | 16,1       | 10,73      | I. 15. 10        | O. I. 22. 20,5 | 14,1       | 12,55      |
| O. 29. 20        | O. O. 56. 51,4 | 17,8       | 8,73       | I. 7. 20         | O. I. 10. 26,7 | 16,1       | 10,77      | I. 15. 20        | O. I. 22. 34,6 | 14,1       | 12,58      |
| O. 29. 30        | O. O. 57. 9,2  | 17,7       | 8,77       | I. 7. 30         | O. I. 10. 42,8 | 16,1       | 10,81      | I. 15. 30        | O. I. 22. 48,7 | 14,1       | 12,62      |
| O. 29. 40        | O. O. 57. 26,9 | 17,7       | 8,82       | I. 7. 40         | O. I. 10. 58,9 | 16,0       | 10,85      | I. 15. 40        | O. I. 23. 2,8  | 14,1       | 12,65      |
| O. 29. 50        | O. O. 57. 44,6 | 17,7       | 8,86       | I. 7. 50         | O. I. 11. 14,9 | 16,0       | 10,89      | I. 15. 50        | O. I. 23. 16,9 | 14,0       | 12,68      |
| I. 0. 0          | O. O. 58. 2,3  | 17,7       | 8,91       | I. 8. 0          | O. I. 11. 30,9 | 15,9       | 10,93      | I. 16. 0         | O. I. 23. 30,9 | 13,9       | 12,72      |
| I. 0. 10         | O. O. 58. 20,0 | 17,6       | 8,95       | I. 8. 10         | O. I. 11. 46,9 | 15,9       | 10,97      | I. 16. 10        | O. I. 23. 44,8 | 13,9       | 12,75      |
| I. 0. 20         | O. O. 58. 37,6 | 17,6       | 9,00       | I. 8. 20         | O. I. 12. 2,8  | 15,8       | 11,01      | I. 16. 20        | O. I. 23. 58,7 | 13,8       | 12,79      |
| I. 0. 30         | O. O. 58. 55,2 | 17,5       | 9,04       | I. 8. 30         | O. I. 12. 18,7 | 15,8       | 11,05      | I. 16. 30        | O. I. 24. 12,6 | 13,8       | 12,82      |
| I. 0. 40         | O. O. 59. 12,7 | 17,5       | 9,08       | I. 8. 40         | O. I. 12. 34,5 | 15,8       | 11,09      | I. 16. 40        | O. I. 24. 26,4 | 13,8       | 12,86      |
| I. 0. 50         | O. O. 59. 30,2 | 17,5       | 9,13       | I. 8. 50         | O. I. 12. 50,3 | 15,7       | 11,13      | I. 16. 50        | O. I. 24. 40,2 | 13,7       | 12,89      |
| I. 1. 0          | O. O. 59. 47,7 | 17,4       | 9,17       | I. 9. 0          | O. I. 13. 6,1  | 15,7       | 11,17      | I. 17. 0         | O. I. 24. 53,9 | 13,7       | 12,93      |
| I. 1. 10         | O. I. 0. 5,1   | 17,4       | 9,22       | I. 9. 10         | O. I. 13. 21,8 | 15,6       | 11,21      | I. 17. 10        | O. I. 25. 7,6  | 13,6       | 12,96      |
| I. 1. 20         | O. I. 0. 22,5  | 17,4       | 9,26       | I. 9. 20         | O. I. 13. 37,5 | 15,6       | 11,25      | I. 17. 20        | O. I. 25. 21,2 | 13,6       | 12,99      |
| I. 1. 30         | O. I. 0. 39,9  | 17,4       | 9,30       | I. 9. 30         | O. I. 13. 53,1 | 15,6       | 11,28      | I. 17. 30        | O. I. 25. 34,8 | 13,5       | 13,03      |
| I. 1. 40         | O. I. 0. 57,3  | 17,3       | 9,35       | I. 9. 40         | O. I. 14. 8,7  | 15,5       | 11,32      | I. 17. 40        | O. I. 25. 48,3 | 13,5       | 13,06      |
| I. 1. 50         | O. I. 1. 14,6  | 17,3       | 9,39       | I. 9. 50         | O. I. 14. 24,3 | 15,5       | 11,36      | I. 17. 50        | O. I. 26. 1,8  | 13,5       | 13,09      |
| I. 2. 0          | O. I. 1. 31,9  | 17,3       | 9,43       | I. 10. 0         | O. I. 14. 39,8 | 15,5       | 11,40      | I. 18. 0         | O. I. 26. 15,3 | 13,5       | 13,13      |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— |
|------------------|----------------|------------|------------|------------------|----------------|------------|------------|------------------|----------------|------------|------------|
| S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         |
| 1. 18. 0         | 0. 1. 26. 15,3 | 13,4       | 13,13      | 1. 26. 0         | 0. 1. 36. 4,9  | 11,1       | 14,57      | 2. 4. 0          | 0. 1. 43. 57,6 | 8,5        | 15,72      |
| 1. 18. 10        | 0. 1. 26. 28,7 | 13,4       | 13,16      | 1. 26. 10        | 0. 1. 36. 16,0 | 11,1       | 14,60      | 2. 4. 10         | 0. 1. 44. 6,1  | 8,5        | 15,74      |
| 1. 18. 20        | 0. 1. 26. 42,1 | 13,4       | 13,19      | 1. 26. 20        | 0. 1. 36. 27,0 | 11,0       | 14,63      | 2. 4. 20         | 0. 1. 44. 14,6 | 8,4        | 15,76      |
| 1. 18. 30        | 0. 1. 26. 55,4 | 13,3       | 13,23      | 1. 26. 30        | 0. 1. 36. 38,0 | 11,0       | 14,66      | 2. 4. 30         | 0. 1. 44. 23,0 | 8,3        | 15,78      |
| 1. 18. 40        | 0. 1. 27. 8,7  | 13,3       | 13,26      | 1. 26. 40        | 0. 1. 36. 48,9 | 10,9       | 14,69      | 2. 4. 40         | 0. 1. 44. 31,3 | 8,3        | 15,80      |
| 1. 18. 50        | 0. 1. 27. 21,9 | 13,2       | 13,29      | 1. 26. 50        | 0. 1. 36. 59,8 | 10,8       | 14,72      | 2. 4. 50         | 0. 1. 44. 39,6 | 8,3        | 15,82      |
| 1. 19. 0         | 0. 1. 27. 35,1 | 13,1       | 13,32      | 1. 27. 0         | 0. 1. 37. 10,6 | 10,8       | 14,74      | 2. 5. 0          | 0. 1. 44. 47,9 | 8,2        | 15,84      |
| 1. 19. 10        | 0. 1. 27. 48,2 | 13,1       | 13,35      | 1. 27. 10        | 0. 1. 37. 21,4 | 10,7       | 14,77      | 2. 5. 10         | 0. 1. 44. 56,1 | 8,1        | 15,86      |
| 1. 19. 20        | 0. 1. 28. 1,3  | 13,0       | 13,39      | 1. 27. 20        | 0. 1. 37. 32,1 | 10,6       | 14,79      | 2. 5. 20         | 0. 1. 45. 4,2  | 8,1        | 15,88      |
| 1. 19. 30        | 0. 1. 28. 14,3 | 13,0       | 13,42      | 1. 27. 30        | 0. 1. 37. 42,7 | 10,6       | 14,82      | 2. 5. 30         | 0. 1. 45. 12,3 | 8,1        | 15,90      |
| 1. 19. 40        | 0. 1. 28. 27,3 | 12,9       | 13,45      | 1. 27. 40        | 0. 1. 37. 53,3 | 10,6       | 14,84      | 2. 5. 40         | 0. 1. 45. 20,4 | 8,0        | 15,92      |
| 1. 19. 50        | 0. 1. 28. 40,2 | 12,9       | 13,48      | 1. 27. 50        | 0. 1. 38. 3,9  | 10,5       | 14,87      | 2. 5. 50         | 0. 1. 45. 28,4 | 7,9        | 15,94      |
| 1. 20. 0         | 0. 1. 28. 53,1 | 12,9       | 13,51      | 1. 28. 0         | 0. 1. 38. 14,4 | 10,5       | 14,89      | 2. 6. 0          | 0. 1. 45. 36,3 | 7,9        | 15,96      |
| 1. 20. 10        | 0. 1. 29. 6,0  | 12,8       | 13,55      | 1. 28. 10        | 0. 1. 38. 24,9 | 10,4       | 14,91      | 2. 6. 10         | 0. 1. 45. 44,2 | 7,8        | 15,97      |
| 1. 20. 20        | 0. 1. 29. 18,8 | 12,7       | 13,58      | 1. 28. 20        | 0. 1. 38. 35,3 | 10,3       | 14,94      | 2. 6. 20         | 0. 1. 45. 52,0 | 7,7        | 15,99      |
| 1. 20. 30        | 0. 1. 29. 31,5 | 12,7       | 13,61      | 1. 28. 30        | 0. 1. 38. 45,6 | 10,3       | 14,96      | 2. 6. 30         | 0. 1. 45. 59,7 | 7,7        | 16,01      |
| 1. 20. 40        | 0. 1. 29. 44,2 | 12,6       | 13,64      | 1. 28. 40        | 0. 1. 38. 55,9 | 10,3       | 14,99      | 2. 6. 40         | 0. 1. 46. 7,4  | 7,7        | 16,03      |
| 1. 20. 50        | 0. 1. 29. 56,8 | 12,6       | 13,67      | 1. 28. 50        | 0. 1. 39. 6,2  | 10,2       | 15,01      | 2. 6. 50         | 0. 1. 46. 15,1 | 7,6        | 16,05      |
| 1. 21. 0         | 0. 1. 30. 9,4  | 12,6       | 13,70      | 1. 29. 0         | 0. 1. 39. 16,4 | 10,1       | 15,04      | 2. 7. 0          | 0. 1. 46. 22,7 | 7,5        | 16,07      |
| 1. 21. 10        | 0. 1. 30. 22,0 | 12,5       | 13,73      | 1. 29. 10        | 0. 1. 39. 26,5 | 10,1       | 15,06      | 2. 7. 10         | 0. 1. 46. 30,2 | 7,5        | 16,08      |
| 1. 21. 20        | 0. 1. 30. 34,5 | 12,5       | 13,77      | 1. 29. 20        | 0. 1. 39. 36,6 | 10,0       | 15,09      | 2. 7. 20         | 0. 1. 46. 37,7 | 7,4        | 16,10      |
| 1. 21. 30        | 0. 1. 30. 47,0 | 12,4       | 13,80      | 1. 29. 30        | 0. 1. 39. 46,6 | 10,0       | 15,11      | 2. 7. 30         | 0. 1. 46. 45,1 | 7,4        | 16,12      |
| 1. 21. 40        | 0. 1. 30. 59,4 | 12,4       | 13,83      | 1. 29. 40        | 0. 1. 39. 56,6 | 9,9        | 15,14      | 2. 7. 40         | 0. 1. 46. 52,5 | 7,3        | 16,14      |
| 1. 21. 50        | 0. 1. 31. 11,8 | 12,3       | 13,86      | 1. 29. 50        | 0. 1. 40. 6,5  | 9,9        | 15,16      | 2. 7. 50         | 0. 1. 46. 59,8 | 7,3        | 16,15      |
| 1. 22. 0         | 0. 1. 31. 24,1 | 12,3       | 13,89      | 2. 0. 0          | 0. 1. 40. 16,4 | 9,8        | 15,19      | 2. 8. 0          | 0. 1. 47. 7,1  | 7,2        | 16,17      |
| 1. 22. 10        | 0. 1. 31. 36,4 | 12,2       | 13,92      | 2. 0. 10         | 0. 1. 40. 26,2 | 9,8        | 15,21      | 2. 8. 10         | 0. 1. 47. 14,3 | 7,2        | 16,19      |
| 1. 22. 20        | 0. 1. 31. 48,6 | 12,1       | 13,95      | 2. 0. 20         | 0. 1. 40. 36,0 | 9,7        | 15,23      | 2. 8. 20         | 0. 1. 47. 21,5 | 7,1        | 16,21      |
| 1. 22. 30        | 0. 1. 32. 0,7  | 12,1       | 13,98      | 2. 0. 30         | 0. 1. 40. 45,7 | 9,7        | 15,26      | 2. 8. 30         | 0. 1. 47. 28,6 | 7,0        | 16,22      |
| 1. 22. 40        | 0. 1. 32. 12,9 | 12,0       | 14,01      | 2. 0. 40         | 0. 1. 40. 55,4 | 9,6        | 15,28      | 2. 8. 40         | 0. 1. 47. 35,6 | 6,9        | 16,24      |
| 1. 22. 50        | 0. 1. 32. 25,0 | 12,0       | 14,04      | 2. 0. 50         | 0. 1. 41. 5,0  | 9,6        | 15,30      | 2. 8. 50         | 0. 1. 47. 42,6 | 6,9        | 16,26      |
| 1. 23. 0         | 0. 1. 32. 37,0 | 11,9       | 14,07      | 2. 1. 0          | 0. 1. 41. 14,6 | 9,5        | 15,33      | 2. 9. 0          | 0. 1. 47. 49,5 | 6,8        | 16,27      |
| 1. 23. 10        | 0. 1. 32. 49,0 | 11,9       | 14,09      | 2. 1. 10         | 0. 1. 41. 24,1 | 9,5        | 15,35      | 2. 9. 10         | 0. 1. 47. 56,4 | 6,8        | 16,29      |
| 1. 23. 20        | 0. 1. 33. 0,9  | 11,8       | 14,12      | 2. 1. 20         | 0. 1. 41. 33,6 | 9,4        | 15,37      | 2. 9. 20         | 0. 1. 48. 3,2  | 6,7        | 16,30      |
| 1. 23. 30        | 0. 1. 33. 12,8 | 11,8       | 14,15      | 2. 1. 30         | 0. 1. 41. 43,0 | 9,3        | 15,39      | 2. 9. 30         | 0. 1. 48. 10,0 | 6,6        | 16,32      |
| 1. 23. 40        | 0. 1. 33. 24,6 | 11,7       | 14,18      | 2. 1. 40         | 0. 1. 41. 52,3 | 9,3        | 15,42      | 2. 9. 40         | 0. 1. 48. 16,7 | 6,6        | 16,33      |
| 1. 23. 50        | 0. 1. 33. 36,4 | 11,7       | 14,21      | 2. 1. 50         | 0. 1. 42. 1,6  | 9,2        | 15,44      | 2. 9. 50         | 0. 1. 48. 23,3 | 6,5        | 16,35      |
| 1. 24. 0         | 0. 1. 33. 48,1 | 11,6       | 14,24      | 2. 2. 0          | 0. 1. 42. 10,8 | 9,2        | 15,46      | 2. 10. 0         | 0. 1. 48. 29,9 | 6,5        | 16,37      |
| 1. 24. 10        | 0. 1. 33. 59,8 | 11,6       | 14,27      | 2. 2. 10         | 0. 1. 42. 20,0 | 9,1        | 15,48      | 2. 10. 10        | 0. 1. 48. 36,4 | 6,4        | 16,38      |
| 1. 24. 20        | 0. 1. 34. 11,4 | 11,5       | 14,30      | 2. 2. 20         | 0. 1. 42. 29,1 | 9,1        | 15,51      | 2. 10. 20        | 0. 1. 48. 42,9 | 6,4        | 16,40      |
| 1. 24. 30        | 0. 1. 34. 23,0 | 11,5       | 14,32      | 2. 2. 30         | 0. 1. 42. 38,2 | 9,0        | 15,53      | 2. 10. 30        | 0. 1. 48. 49,3 | 6,3        | 16,41      |
| 1. 24. 40        | 0. 1. 34. 34,5 | 11,4       | 14,35      | 2. 2. 40         | 0. 1. 42. 47,2 | 9,0        | 15,55      | 2. 10. 40        | 0. 1. 48. 55,7 | 6,3        | 16,43      |
| 1. 24. 50        | 0. 1. 34. 46,0 | 11,4       | 14,38      | 2. 2. 50         | 0. 1. 42. 56,2 | 8,9        | 15,57      | 2. 10. 50        | 0. 1. 49. 2,0  | 6,2        | 16,44      |
| 1. 25. 0         | 0. 1. 34. 57,4 | 11,3       | 14,41      | 2. 3. 0          | 0. 1. 43. 5,1  | 8,9        | 15,59      | 2. 11. 0         | 0. 1. 49. 8,2  | 6,1        | 16,46      |
| 1. 25. 10        | 0. 1. 35. 8,8  | 11,3       | 14,44      | 2. 3. 10         | 0. 1. 43. 14,0 | 8,8        | 15,61      | 2. 11. 10        | 0. 1. 49. 14,3 | 6,1        | 16,47      |
| 1. 25. 20        | 0. 1. 35. 20,1 | 11,2       | 14,46      | 2. 3. 20         | 0. 1. 43. 22,8 | 8,8        | 15,63      | 2. 11. 20        | 0. 1. 49. 20,5 | 6,0        | 16,48      |
| 1. 25. 30        | 0. 1. 35. 31,4 | 11,2       | 14,49      | 2. 3. 30         | 0. 1. 43. 31,6 | 8,7        | 15,65      | 2. 11. 30        | 0. 1. 49. 26,6 | 6,0        | 16,50      |
| 1. 25. 40        | 0. 1. 35. 42,6 | 11,1       | 14,52      | 2. 3. 40         | 0. 1. 43. 40,3 | 8,7        | 15,68      | 2. 11. 40        | 0. 1. 49. 32,6 | 5,9        | 16,51      |
| 1. 25. 50        | 0. 1. 35. 53,8 | 11,1       | 14,55      | 2. 3. 50         | 0. 1. 43. 49,0 | 8,6        | 15,70      | 2. 11. 50        | 0. 1. 49. 38,6 | 5,9        | 16,53      |
| 1. 26. 0         | 0. 1. 36. 4,9  | 11,1       | 14,57      | 2. 4. 0          | 0. 1. 43. 57,6 | 8,6        | 15,72      | 2. 12. 0         | 0. 1. 49. 44,5 | 5,9        | 16,54      |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— | Mean<br>Anomaly. | Equation.      | Diff.<br>+ | S. V.<br>— |
|------------------|----------------|------------|------------|------------------|----------------|------------|------------|------------------|----------------|------------|------------|
| S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         | S. D. M.         | S. D. M. S.    | S.         | S.         |
| 2. 12. 0         | 0. 1. 49. 44,5 | 5,8        | 16,54      | 2. 20. 0         | 0. 1. 53. 20,1 | 3,1        | 17,03      | 2. 28. 0         | 0. 1. 54. 41,2 | 0,3        | 17,18      |
| 2. 12. 10        | 0. 1. 49. 50,3 | 5,8        | 16,55      | 2. 20. 10        | 0. 1. 53. 23,2 | 3,0        | 17,04      | 2. 28. 10        | 0. 1. 54. 41,5 | 0,2        | 17,18      |
| 2. 12. 20        | 0. 1. 49. 56,1 | 5,7        | 16,57      | 2. 20. 20        | 0. 1. 53. 26,2 | 2,9        | 17,04      | 2. 28. 20        | 0. 1. 54. 41,7 | 0,1        | 17,18      |
| 2. 12. 30        | 0. 1. 50. 1,8  | 5,7        | 16,58      | 2. 20. 30        | 0. 1. 53. 29,1 | 2,9        | 17,05      | 2. 28. 30        | 0. 1. 54. 41,8 | 0,0        | 17,18      |
| 2. 12. 40        | 0. 1. 50. 7,5  | 5,6        | 16,59      | 2. 20. 40        | 0. 1. 53. 32,0 | 2,8        | 17,06      | 2. 28. 40        | 0. 1. 54. 41,8 | 0,0        | 17,18      |
| 2. 12. 50        | 0. 1. 50. 13,1 | 5,6        | 16,61      | 2. 20. 50        | 0. 1. 53. 34,8 | 2,8        | 17,06      | 2. 28. 50        | 0. 1. 54. 41,8 | 0,1        | 17,18      |
| 2. 13. 0         | 0. 1. 50. 18,7 | 5,5        | 16,62      | 2. 21. 0         | 0. 1. 53. 37,6 | 2,7        | 17,07      | 2. 29. 0         | 0. 1. 54. 41,7 | 0,1        | 17,18      |
| 2. 13. 10        | 0. 1. 50. 24,2 | 5,4        | 16,63      | 2. 21. 10        | 0. 1. 53. 40,3 | 2,7        | 17,07      | 2. 29. 10        | 0. 1. 54. 41,6 | 0,1        | 17,18      |
| 2. 13. 20        | 0. 1. 50. 29,6 | 5,4        | 16,65      | 2. 21. 20        | 0. 1. 53. 43,0 | 2,6        | 17,08      | 2. 29. 20        | 0. 1. 54. 41,5 | 0,2        | 17,17      |
| 2. 13. 30        | 0. 1. 50. 35,0 | 5,3        | 16,66      | 2. 21. 30        | 0. 1. 53. 45,6 | 2,5        | 17,09      | 2. 29. 30        | 0. 1. 54. 41,3 | 0,3        | 17,17      |
| 2. 13. 40        | 0. 1. 50. 40,3 | 5,3        | 16,67      | 2. 21. 40        | 0. 1. 53. 48,1 | 2,5        | 17,09      | 2. 29. 40        | 0. 1. 54. 41,0 | 0,3        | 17,17      |
| 2. 13. 50        | 0. 1. 50. 45,6 | 5,2        | 16,68      | 2. 21. 50        | 0. 1. 53. 50,6 | 2,4        | 17,10      | 2. 29. 50        | 0. 1. 54. 40,7 | 0,4        | 17,17      |
| 2. 14. 0         | 0. 1. 50. 50,8 | 5,2        | 16,70      | 2. 22. 0         | 0. 1. 53. 53,0 | 2,4        | 17,10      | 3. 0. 0          | 0. 1. 54. 40,3 | 0,5        | 17,17      |
| 2. 14. 10        | 0. 1. 50. 56,0 | 5,1        | 16,71      | 2. 22. 10        | 0. 1. 53. 55,4 | 2,3        | 17,11      | 3. 0. 10         | 0. 1. 54. 39,8 | 0,5        | 17,16      |
| 2. 14. 20        | 0. 1. 51. 1,1  | 5,1        | 16,72      | 2. 22. 20        | 0. 1. 53. 57,7 | 2,2        | 17,11      | 3. 0. 20         | 0. 1. 54. 39,3 | 0,6        | 17,16      |
| 2. 14. 30        | 0. 1. 51. 6,2  | 5,0        | 16,73      | 2. 22. 30        | 0. 1. 53. 59,9 | 2,2        | 17,12      | 3. 0. 30         | 0. 1. 54. 38,7 | 0,6        | 17,16      |
| 2. 14. 40        | 0. 1. 51. 11,2 | 4,9        | 16,74      | 2. 22. 40        | 0. 1. 54. 2,1  | 2,1        | 17,12      | 3. 0. 40         | 0. 1. 54. 38,1 | 0,7        | 17,15      |
| 2. 14. 50        | 0. 1. 51. 16,1 | 4,9        | 16,75      | 2. 22. 50        | 0. 1. 54. 4,2  | 2,1        | 17,13      | 3. 0. 50         | 0. 1. 54. 37,4 | 0,7        | 17,15      |
| 2. 15. 0         | 0. 1. 51. 21,0 | 4,8        | 16,76      | 2. 23. 0         | 0. 1. 54. 6,3  | 2,0        | 17,13      | 3. 1. 0          | 0. 1. 54. 36,7 | 0,8        | 17,15      |
| 2. 15. 10        | 0. 1. 51. 25,8 | 4,8        | 16,78      | 2. 23. 10        | 0. 1. 54. 8,3  | 2,0        | 17,13      | 3. 1. 10         | 0. 1. 54. 35,9 | 0,9        | 17,14      |
| 2. 15. 20        | 0. 1. 51. 30,6 | 4,7        | 16,79      | 2. 23. 20        | 0. 1. 54. 10,3 | 1,9        | 17,14      | 3. 1. 20         | 0. 1. 54. 35,0 | 0,9        | 17,14      |
| 2. 15. 30        | 0. 1. 51. 35,3 | 4,6        | 16,80      | 2. 23. 30        | 0. 1. 54. 12,2 | 1,8        | 17,14      | 3. 1. 30         | 0. 1. 54. 34,1 | 1,0        | 17,14      |
| 2. 15. 40        | 0. 1. 51. 39,9 | 4,6        | 16,81      | 2. 23. 40        | 0. 1. 54. 14,0 | 1,7        | 17,15      | 3. 1. 40         | 0. 1. 54. 33,1 | 1,0        | 17,13      |
| 2. 15. 50        | 0. 1. 51. 44,5 | 4,5        | 16,82      | 2. 23. 50        | 0. 1. 54. 15,7 | 1,7        | 17,15      | 3. 1. 50         | 0. 1. 54. 32,1 | 1,1        | 17,13      |
| 2. 16. 0         | 0. 1. 51. 49,0 | 4,5        | 16,83      | 2. 24. 0         | 0. 1. 54. 17,4 | 1,7        | 17,15      | 3. 2. 0          | 0. 1. 54. 31,0 | 1,2        | 17,13      |
| 2. 16. 10        | 0. 1. 51. 53,5 | 4,4        | 16,84      | 2. 24. 10        | 0. 1. 54. 19,1 | 1,6        | 17,16      | 3. 2. 10         | 0. 1. 54. 29,8 | 1,2        | 17,12      |
| 2. 16. 20        | 0. 1. 51. 57,9 | 4,3        | 16,85      | 2. 24. 20        | 0. 1. 54. 20,7 | 1,6        | 17,16      | 3. 2. 20         | 0. 1. 54. 28,6 | 1,3        | 17,12      |
| 2. 16. 30        | 0. 1. 52. 2,2  | 4,3        | 16,86      | 2. 24. 30        | 0. 1. 54. 22,3 | 1,5        | 17,16      | 3. 2. 30         | 0. 1. 54. 27,3 | 1,3        | 17,11      |
| 2. 16. 40        | 0. 1. 52. 6,4  | 4,2        | 16,87      | 2. 24. 40        | 0. 1. 54. 23,8 | 1,4        | 17,16      | 3. 2. 40         | 0. 1. 54. 26,0 | 1,4        | 17,11      |
| 2. 16. 50        | 0. 1. 52. 10,7 | 4,2        | 16,88      | 2. 24. 50        | 0. 1. 54. 25,2 | 1,4        | 17,16      | 3. 2. 50         | 0. 1. 54. 24,6 | 1,4        | 17,11      |
| 2. 17. 0         | 0. 1. 52. 14,9 | 4,1        | 16,89      | 2. 25. 0         | 0. 1. 54. 26,6 | 1,3        | 17,17      | 3. 3. 0          | 0. 1. 54. 23,2 | 1,5        | 17,10      |
| 2. 17. 10        | 0. 1. 52. 19,0 | 4,0        | 16,90      | 2. 25. 10        | 0. 1. 54. 27,9 | 1,3        | 17,17      | 3. 3. 10         | 0. 1. 54. 21,7 | 1,6        | 17,09      |
| 2. 17. 20        | 0. 1. 52. 23,0 | 4,0        | 16,91      | 2. 25. 20        | 0. 1. 54. 29,2 | 1,2        | 17,17      | 3. 3. 20         | 0. 1. 54. 20,1 | 1,6        | 17,09      |
| 2. 17. 30        | 0. 1. 52. 27,0 | 4,0        | 16,92      | 2. 25. 30        | 0. 1. 54. 30,4 | 1,1        | 17,17      | 3. 3. 30         | 0. 1. 54. 18,5 | 1,7        | 17,09      |
| 2. 17. 40        | 0. 1. 52. 31,0 | 3,9        | 16,93      | 2. 25. 40        | 0. 1. 54. 31,5 | 1,0        | 17,17      | 3. 3. 40         | 0. 1. 54. 16,8 | 1,7        | 17,08      |
| 2. 17. 50        | 0. 1. 52. 34,9 | 3,8        | 16,94      | 2. 25. 50        | 0. 1. 54. 32,5 | 1,0        | 17,18      | 3. 4. 0          | 0. 1. 54. 15,1 | 1,8        | 17,08      |
| 2. 18. 0         | 0. 1. 52. 38,7 | 3,8        | 16,95      | 2. 26. 0         | 0. 1. 54. 33,5 | 0,9        | 17,18      | 3. 4. 10         | 0. 1. 54. 13,3 | 1,9        | 17,07      |
| 2. 18. 10        | 0. 1. 52. 42,5 | 3,7        | 16,96      | 2. 26. 10        | 0. 1. 54. 34,5 | 0,8        | 17,18      | 3. 4. 20         | 0. 1. 54. 11,4 | 1,9        | 17,06      |
| 2. 18. 20        | 0. 1. 52. 46,2 | 3,6        | 16,96      | 2. 26. 20        | 0. 1. 54. 35,4 | 0,8        | 17,18      | 3. 4. 30         | 0. 1. 54. 9,5  | 2,0        | 17,05      |
| 2. 18. 30        | 0. 1. 52. 49,8 | 3,6        | 16,97      | 2. 26. 30        | 0. 1. 54. 36,2 | 0,7        | 17,18      | 3. 4. 40         | 0. 1. 54. 5,6  | 2,1        | 17,05      |
| 2. 18. 40        | 0. 1. 52. 53,4 | 3,5        | 16,98      | 2. 26. 40        | 0. 1. 54. 37,0 | 0,7        | 17,18      | 3. 4. 50         | 0. 1. 54. 3,5  | 2,1        | 17,04      |
| 2. 18. 50        | 0. 1. 52. 57,0 | 3,4        | 16,99      | 2. 26. 50        | 0. 1. 54. 37,7 | 0,6        | 17,18      | 3. 5. 0          | 0. 1. 53. 59,2 | 2,2        | 17,03      |
| 2. 19. 0         | 0. 1. 53. 0,5  | 3,3        | 17,00      | 2. 27. 0         | 0. 1. 54. 38,4 | 0,6        | 17,18      | 3. 5. 10         | 0. 1. 53. 56,9 | 2,3        | 17,03      |
| 2. 19. 10        | 0. 1. 53. 3,9  | 3,3        | 17,01      | 2. 27. 10        | 0. 1. 54. 39,0 | 0,5        | 17,18      | 3. 5. 20         | 0. 1. 53. 54,6 | 2,3        | 17,02      |
| 2. 19. 20        | 0. 1. 53. 7,2  | 3,3        | 17,02      | 2. 27. 20        | 0. 1. 54. 40,1 | 0,4        | 17,18      | 3. 5. 30         | 0. 1. 53. 52,2 | 2,4        | 17,01      |
| 2. 19. 30        | 0. 1. 53. 10,5 | 3,2        | 17,02      | 2. 27. 30        | 0. 1. 54. 40,5 | 0,4        | 17,18      | 3. 5. 40         | 0. 1. 53. 49,7 | 2,5        | 17,00      |
| 2. 19. 40        | 0. 1. 53. 13,8 | 3,1        | 17,03      | 2. 27. 40        | 0. 1. 54. 40,9 | 0,3        | 17,18      | 3. 5. 50         | 0. 1. 53. 47,2 | 2,5        | 17,00      |
| 2. 19. 50        | 0. 1. 53. 17,0 |            |            | 2. 27. 50        | 0. 1. 54. 41,2 |            |            |                  |                |            |            |
| 2. 20. 0         | 0. 1. 53. 20,1 |            |            | 2. 28. 0         |                |            |            |                  |                |            |            |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. |
|------------------|----------------|-------|-------|------------------|----------------|-------|-------|------------------|----------------|-------|-------|
| D. M.            | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    |
| 3. 6. 0          | O. I. 53. 47,2 | 2,6   | 17,00 | 3. 14. 0         | O. I. 50. 40,6 | 5,2   | 16,49 | 3. 22. 0         | O. I. 45. 26,1 | 7,9   | 15,67 |
| 3. 6. 10         | O. I. 53. 44,6 | 2,6   | 16,99 | 3. 14. 10        | O. I. 50. 35,4 | 5,3   | 16,47 | 3. 22. 10        | O. I. 45. 18,2 | 8,0   | 15,65 |
| 3. 6. 20         | O. I. 53. 42,0 | 2,6   | 16,98 | 3. 14. 20        | O. I. 50. 30,1 | 5,4   | 16,46 | 3. 22. 20        | O. I. 45. 10,2 | 8,0   | 15,63 |
| 3. 6. 30         | O. I. 53. 39,4 | 2,7   | 16,98 | 3. 14. 30        | O. I. 50. 24,7 | 5,5   | 16,45 | 3. 22. 30        | O. I. 45. 2,2  | 8,0   | 15,61 |
| 3. 6. 40         | O. I. 53. 36,7 | 2,8   | 16,97 | 3. 14. 40        | O. I. 50. 19,2 | 5,5   | 16,43 | 3. 22. 40        | O. I. 44. 54,2 | 8,1   | 15,59 |
| 3. 6. 50         | O. I. 53. 33,9 | 2,8   | 16,96 | 3. 14. 50        | O. I. 50. 13,7 | 5,5   | 16,42 | 3. 22. 50        | O. I. 44. 46,1 | 8,1   | 15,57 |
| 3. 7. 0          | O. I. 53. 31,1 | 2,9   | 16,95 | 3. 15. 0         | O. I. 50. 8,2  | 5,6   | 16,40 | 3. 23. 0         | O. I. 44. 38,0 | 8,2   | 15,55 |
| 3. 7. 10         | O. I. 53. 28,2 | 2,9   | 16,95 | 3. 15. 10        | O. I. 50. 2,6  | 5,7   | 16,39 | 3. 23. 10        | O. I. 44. 29,8 | 8,3   | 15,53 |
| 3. 7. 20         | O. I. 53. 25,3 | 3,0   | 16,94 | 3. 15. 20        | O. I. 49. 56,9 | 5,7   | 16,37 | 3. 23. 20        | O. I. 44. 21,5 | 8,3   | 15,51 |
| 3. 7. 30         | O. I. 53. 22,3 | 3,1   | 16,93 | 3. 15. 30        | O. I. 49. 51,2 | 5,8   | 16,36 | 3. 23. 30        | O. I. 44. 13,2 | 8,3   | 15,48 |
| 3. 7. 40         | O. I. 53. 19,2 | 3,1   | 16,92 | 3. 15. 40        | O. I. 49. 45,4 | 5,8   | 16,34 | 3. 23. 40        | O. I. 44. 4,9  | 8,4   | 15,46 |
| 3. 7. 50         | O. I. 53. 16,1 | 3,2   | 16,91 | 3. 15. 50        | O. I. 49. 39,6 | 5,9   | 16,33 | 3. 23. 50        | O. I. 43. 56,5 | 8,4   | 15,44 |
| 3. 8. 0          | O. I. 53. 12,9 | 3,3   | 16,90 | 3. 16. 0         | O. I. 49. 33,7 | 5,9   | 16,31 | 3. 24. 0         | O. I. 43. 48,1 | 8,5   | 15,42 |
| 3. 8. 10         | O. I. 53. 9,6  | 3,3   | 16,89 | 3. 16. 10        | O. I. 49. 27,8 | 6,0   | 16,30 | 3. 24. 10        | O. I. 43. 39,6 | 8,5   | 15,39 |
| 3. 8. 20         | O. I. 53. 6,3  | 3,3   | 16,88 | 3. 16. 20        | O. I. 49. 21,8 | 6,0   | 16,28 | 3. 24. 20        | O. I. 43. 31,1 | 8,6   | 15,37 |
| 3. 8. 30         | O. I. 53. 3,0  | 3,4   | 16,87 | 3. 16. 30        | O. I. 49. 15,8 | 6,1   | 16,27 | 3. 24. 30        | O. I. 43. 22,5 | 8,7   | 15,35 |
| 3. 8. 40         | O. I. 52. 59,6 | 3,5   | 16,87 | 3. 16. 40        | O. I. 49. 9,7  | 6,2   | 16,25 | 3. 24. 40        | O. I. 43. 13,8 | 8,7   | 15,33 |
| 3. 8. 50         | O. I. 52. 56,1 | 3,5   | 16,86 | 3. 16. 50        | O. I. 49. 3,5  | 6,2   | 16,23 | 3. 24. 50        | O. I. 43. 5,1  | 8,7   | 15,31 |
| 3. 9. 0          | O. I. 52. 52,6 | 3,5   | 16,85 | 3. 17. 0         | O. I. 48. 57,3 | 6,3   | 16,22 | 3. 25. 0         | O. I. 42. 56,4 | 8,8   | 15,29 |
| 3. 9. 10         | O. I. 52. 49,1 | 3,6   | 16,84 | 3. 17. 10        | O. I. 48. 51,1 | 6,3   | 16,20 | 3. 25. 10        | O. I. 42. 47,6 | 8,9   | 15,27 |
| 3. 9. 20         | O. I. 52. 45,5 | 3,7   | 16,83 | 3. 17. 20        | O. I. 48. 44,8 | 6,4   | 16,18 | 3. 25. 20        | O. I. 42. 38,7 | 8,9   | 15,24 |
| 3. 9. 30         | O. I. 52. 41,8 | 3,8   | 16,82 | 3. 17. 30        | O. I. 48. 38,4 | 6,5   | 16,17 | 3. 25. 30        | O. I. 42. 29,8 | 9,0   | 15,22 |
| 3. 9. 40         | O. I. 52. 38,0 | 3,8   | 16,81 | 3. 17. 40        | O. I. 48. 31,9 | 6,5   | 16,15 | 3. 25. 40        | O. I. 42. 20,8 | 9,0   | 15,20 |
| 3. 9. 50         | O. I. 52. 34,2 | 3,9   | 16,80 | 3. 17. 50        | O. I. 48. 25,4 | 6,5   | 16,14 | 3. 25. 50        | O. I. 42. 11,8 | 9,1   | 15,17 |
| 3. 10. 0         | O. I. 52. 30,3 | 3,9   | 16,78 | 3. 18. 0         | O. I. 48. 18,9 | 6,6   | 16,12 | 3. 26. 0         | O. I. 42. 2,7  | 9,1   | 15,15 |
| 3. 10. 10        | O. I. 52. 26,4 | 4,0   | 16,77 | 3. 18. 10        | O. I. 48. 12,3 | 6,6   | 16,10 | 3. 26. 10        | O. I. 41. 53,6 | 9,1   | 15,13 |
| 3. 10. 20        | O. I. 52. 22,4 | 4,1   | 16,76 | 3. 18. 20        | O. I. 48. 5,7  | 6,7   | 16,08 | 3. 26. 20        | O. I. 41. 44,5 | 9,2   | 15,10 |
| 3. 10. 30        | O. I. 52. 18,3 | 4,1   | 16,75 | 3. 18. 30        | O. I. 47. 59,0 | 6,7   | 16,07 | 3. 26. 30        | O. I. 41. 35,3 | 9,3   | 15,08 |
| 3. 10. 40        | O. I. 52. 14,2 | 4,1   | 16,74 | 3. 18. 40        | O. I. 47. 52,3 | 6,8   | 16,05 | 3. 26. 40        | O. I. 41. 26,0 | 9,3   | 15,06 |
| 3. 10. 50        | O. I. 52. 10,1 | 4,2   | 16,73 | 3. 18. 50        | O. I. 47. 45,5 | 6,9   | 16,03 | 3. 26. 50        | O. I. 41. 16,7 | 9,4   | 15,03 |
| 3. 11. 0         | O. I. 52. 5,9  | 4,3   | 16,72 | 3. 19. 0         | O. I. 47. 38,6 | 7,0   | 16,01 | 3. 27. 0         | O. I. 41. 7,3  | 9,4   | 15,01 |
| 3. 11. 10        | O. I. 52. 1,6  | 4,3   | 16,71 | 3. 19. 10        | O. I. 47. 31,7 | 7,0   | 16,00 | 3. 27. 10        | O. I. 40. 57,9 | 9,4   | 14,99 |
| 3. 11. 20        | O. I. 51. 57,3 | 4,4   | 16,70 | 3. 19. 20        | O. I. 47. 24,7 | 7,1   | 15,98 | 3. 27. 20        | O. I. 40. 48,5 | 9,5   | 14,96 |
| 3. 11. 30        | O. I. 51. 52,9 | 4,4   | 16,68 | 3. 19. 30        | O. I. 47. 17,7 | 7,1   | 15,96 | 3. 27. 30        | O. I. 40. 39,0 | 9,6   | 14,94 |
| 3. 11. 40        | O. I. 51. 48,5 | 4,5   | 16,67 | 3. 19. 40        | O. I. 47. 10,6 | 7,2   | 15,94 | 3. 27. 40        | O. I. 40. 29,4 | 9,6   | 14,91 |
| 3. 11. 50        | O. I. 51. 44,0 | 4,5   | 16,66 | 3. 19. 50        | O. I. 47. 3,5  | 7,2   | 15,92 | 3. 27. 50        | O. I. 40. 19,8 | 9,7   | 14,89 |
| 3. 12. 0         | O. I. 51. 39,5 | 4,6   | 16,65 | 3. 20. 0         | O. I. 46. 56,3 | 7,3   | 15,90 | 3. 28. 0         | O. I. 40. 10,1 | 9,7   | 14,87 |
| 3. 12. 10        | O. I. 51. 34,9 | 4,6   | 16,64 | 3. 20. 10        | O. I. 46. 49,1 | 7,3   | 15,88 | 3. 28. 10        | O. I. 40. 0,4  | 9,7   | 14,84 |
| 3. 12. 20        | O. I. 51. 30,3 | 4,7   | 16,62 | 3. 20. 20        | O. I. 46. 41,8 | 7,4   | 15,87 | 3. 28. 20        | O. I. 39. 50,7 | 9,8   | 14,82 |
| 3. 12. 30        | O. I. 51. 25,6 | 4,8   | 16,61 | 3. 20. 30        | O. I. 46. 34,5 | 7,4   | 15,85 | 3. 28. 30        | O. I. 39. 40,8 | 9,8   | 14,79 |
| 3. 12. 40        | O. I. 51. 20,8 | 4,8   | 16,60 | 3. 20. 40        | O. I. 46. 27,1 | 7,5   | 15,83 | 3. 28. 40        | O. I. 39. 31,0 | 9,9   | 14,77 |
| 3. 12. 50        | O. I. 51. 16,0 | 4,9   | 16,58 | 3. 20. 50        | O. I. 46. 19,6 | 7,5   | 15,81 | 3. 28. 50        | O. I. 39. 21,1 | 10,0  | 14,74 |
| 3. 13. 0         | O. I. 51. 11,1 | 4,9   | 16,57 | 3. 21. 0         | O. I. 46. 12,1 | 7,6   | 15,79 | 3. 29. 0         | O. I. 39. 11,1 | 10,0  | 14,72 |
| 3. 13. 10        | O. I. 51. 6,2  | 5,0   | 16,56 | 3. 21. 10        | O. I. 46. 4,6  | 7,6   | 15,77 | 3. 29. 10        | O. I. 39. 1,1  | 10,1  | 14,69 |
| 3. 13. 20        | O. I. 51. 1,2  | 5,1   | 16,55 | 3. 21. 20        | O. I. 45. 57,0 | 7,7   | 15,75 | 3. 29. 20        | O. I. 38. 51,0 | 10,1  | 14,67 |
| 3. 13. 30        | O. I. 50. 56,1 | 5,1   | 16,53 | 3. 21. 30        | O. I. 45. 49,4 | 7,7   | 15,73 | 3. 29. 30        | O. I. 38. 40,9 | 10,2  | 14,64 |
| 3. 13. 40        | O. I. 50. 51,0 | 5,2   | 16,52 | 3. 21. 40        | O. I. 45. 41,7 | 7,8   | 15,71 | 3. 29. 40        | O. I. 38. 30,8 | 10,2  | 14,61 |
| 3. 13. 50        | O. I. 50. 45,8 | 5,2   | 16,50 | 3. 21. 50        | O. I. 45. 33,9 | 7,8   | 15,69 | 3. 29. 50        | O. I. 38. 20,6 | 10,3  | 14,59 |
| 3. 14. 0         | O. I. 50. 40,6 | 5,2   | 16,49 | 3. 22. 0         | O. I. 45. 26,1 | 7,8   | 15,67 | 4. 0. 0          | O. I. 38. 10,3 | 10,3  | 14,56 |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. |
|------------------|----------------|-------|-------|------------------|----------------|-------|-------|------------------|----------------|-------|-------|
| S. D. M.         | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    |
| 4. 0. 0          | 0. 1. 38. 10,3 | 10,4  | 14,56 | 4. 8. 0          | 0. 1. 29. 2,8  | 12,5  | 13,19 | 4. 16. 0         | 0. 1. 18. 14,5 | 14,5  | 11,58 |
| 4. 0. 10         | 0. 1. 37. 59,9 | 10,3  | 14,53 | 4. 8. 10         | 0. 1. 28. 50,3 | 12,6  | 13,16 | 4. 16. 10        | 0. 1. 18. 00,0 | 14,5  | 11,54 |
| 4. 0. 20         | 0. 1. 37. 49,6 | 10,4  | 14,51 | 4. 8. 20         | 0. 1. 28. 37,7 | 12,6  | 13,12 | 4. 16. 20        | 0. 1. 17. 45,5 | 14,6  | 11,50 |
| 4. 0. 30         | 0. 1. 37. 39,2 | 10,4  | 14,48 | 4. 8. 30         | 0. 1. 28. 25,1 | 12,7  | 13,09 | 4. 16. 30        | 0. 1. 17. 30,9 | 14,6  | 11,47 |
| 4. 0. 40         | 0. 1. 37. 28,8 | 10,5  | 14,46 | 4. 8. 40         | 0. 1. 28. 12,4 | 12,7  | 13,06 | 4. 16. 40        | 0. 1. 17. 16,3 | 14,7  | 11,43 |
| 4. 0. 50         | 0. 1. 37. 18,3 | 10,5  | 14,43 | 4. 8. 50         | 0. 1. 27. 59,7 | 12,7  | 13,03 | 4. 16. 50        | 0. 1. 17. 1,6  | 14,7  | 11,40 |
| 4. 1. 0          | 0. 1. 37. 7,8  | 10,6  | 14,40 | 4. 9. 0          | 0. 1. 27. 47,0 | 12,8  | 13,00 | 4. 17. 0         | 0. 1. 16. 46,9 | 14,7  | 11,36 |
| 4. 1. 10         | 0. 1. 36. 57,2 | 10,6  | 14,38 | 4. 9. 10         | 0. 1. 27. 34,2 | 12,8  | 12,97 | 4. 17. 10        | 0. 1. 16. 32,2 | 14,8  | 11,32 |
| 4. 1. 20         | 0. 1. 36. 46,6 | 10,7  | 14,35 | 4. 9. 20         | 0. 1. 27. 21,4 | 12,8  | 12,93 | 4. 17. 20        | 0. 1. 16. 17,4 | 14,8  | 11,28 |
| 4. 1. 30         | 0. 1. 36. 35,9 | 10,7  | 14,32 | 4. 9. 30         | 0. 1. 27. 8,6  | 12,9  | 12,90 | 4. 17. 30        | 0. 1. 16. 2,6  | 14,8  | 11,25 |
| 4. 1. 40         | 0. 1. 36. 25,2 | 10,8  | 14,30 | 4. 9. 40         | 0. 1. 26. 55,7 | 13,0  | 12,87 | 4. 17. 40        | 0. 1. 15. 47,8 | 14,8  | 11,21 |
| 4. 1. 50         | 0. 1. 36. 14,4 | 10,9  | 14,27 | 4. 9. 50         | 0. 1. 26. 42,7 | 13,0  | 12,84 | 4. 17. 50        | 0. 1. 15. 33,0 | 14,9  | 11,18 |
| 4. 2. 0          | 0. 1. 36. 3,5  | 10,9  | 14,24 | 4. 10. 0         | 0. 1. 26. 29,7 | 13,0  | 12,81 | 4. 18. 0         | 0. 1. 15. 18,1 | 15,0  | 11,14 |
| 4. 2. 10         | 0. 1. 35. 52,6 | 10,9  | 14,22 | 4. 10. 10        | 0. 1. 26. 16,7 | 13,1  | 12,77 | 4. 18. 10        | 0. 1. 15. 3,1  | 15,0  | 11,10 |
| 4. 2. 20         | 0. 1. 35. 41,7 | 11,0  | 14,19 | 4. 10. 20        | 0. 1. 26. 3,6  | 13,1  | 12,74 | 4. 18. 20        | 0. 1. 14. 48,1 | 15,0  | 11,07 |
| 4. 2. 30         | 0. 1. 35. 30,7 | 11,0  | 14,16 | 4. 10. 30        | 0. 1. 25. 50,5 | 13,2  | 12,71 | 4. 18. 30        | 0. 1. 14. 33,1 | 15,1  | 11,03 |
| 4. 2. 40         | 0. 1. 35. 19,7 | 11,1  | 14,14 | 4. 10. 40        | 0. 1. 25. 37,3 | 13,2  | 12,68 | 4. 18. 40        | 0. 1. 14. 18,0 | 15,1  | 10,99 |
| 4. 2. 50         | 0. 1. 35. 8,6  | 11,1  | 14,11 | 4. 10. 50        | 0. 1. 25. 24,1 | 13,2  | 12,64 | 4. 18. 50        | 0. 1. 14. 3,0  | 15,1  | 10,96 |
| 4. 3. 0          | 0. 1. 34. 57,5 | 11,1  | 14,09 | 4. 11. 0         | 0. 1. 25. 10,8 | 13,3  | 12,61 | 4. 19. 0         | 0. 1. 13. 47,9 | 15,2  | 10,92 |
| 4. 3. 10         | 0. 1. 34. 46,4 | 11,2  | 14,06 | 4. 11. 10        | 0. 1. 24. 57,5 | 13,3  | 12,58 | 4. 19. 10        | 0. 1. 13. 32,7 | 15,2  | 10,88 |
| 4. 3. 20         | 0. 1. 34. 35,2 | 11,3  | 14,03 | 4. 11. 20        | 0. 1. 24. 44,2 | 13,4  | 12,54 | 4. 19. 20        | 0. 1. 13. 17,5 | 15,2  | 10,84 |
| 4. 3. 30         | 0. 1. 34. 23,9 | 11,3  | 14,00 | 4. 11. 30        | 0. 1. 24. 30,8 | 13,4  | 12,51 | 4. 19. 30        | 0. 1. 13. 2,3  | 15,3  | 10,81 |
| 4. 3. 40         | 0. 1. 34. 12,6 | 11,3  | 13,97 | 4. 11. 40        | 0. 1. 24. 17,4 | 13,4  | 12,48 | 4. 19. 40        | 0. 1. 12. 47,0 | 15,3  | 10,77 |
| 4. 3. 50         | 0. 1. 34. 1,3  | 11,4  | 13,94 | 4. 11. 50        | 0. 1. 24. 04,0 | 13,5  | 12,44 | 4. 19. 50        | 0. 1. 12. 31,7 | 15,3  | 10,73 |
| 4. 4. 0          | 0. 1. 33. 49,9 | 11,4  | 13,91 | 4. 12. 0         | 0. 1. 23. 50,5 | 13,6  | 12,41 | 4. 20. 0         | 0. 1. 12. 16,4 | 15,4  | 10,69 |
| 4. 4. 10         | 0. 1. 33. 38,5 | 11,5  | 13,88 | 4. 12. 10        | 0. 1. 23. 36,9 | 13,6  | 12,38 | 4. 20. 10        | 0. 1. 12. 1,0  | 15,4  | 10,66 |
| 4. 4. 20         | 0. 1. 33. 27,0 | 11,5  | 13,85 | 4. 12. 20        | 0. 1. 23. 23,3 | 13,6  | 12,34 | 4. 20. 20        | 0. 1. 11. 45,6 | 15,5  | 10,62 |
| 4. 4. 30         | 0. 1. 33. 15,5 | 11,6  | 13,82 | 4. 12. 30        | 0. 1. 23. 9,7  | 13,7  | 12,31 | 4. 20. 30        | 0. 1. 11. 30,1 | 15,5  | 10,58 |
| 4. 4. 40         | 0. 1. 33. 3,9  | 11,6  | 13,79 | 4. 12. 40        | 0. 1. 22. 56,0 | 13,7  | 12,28 | 4. 20. 40        | 0. 1. 11. 14,6 | 15,5  | 10,54 |
| 4. 4. 50         | 0. 1. 32. 52,3 | 11,7  | 13,76 | 4. 12. 50        | 0. 1. 22. 42,3 | 13,7  | 12,24 | 4. 20. 50        | 0. 1. 10. 59,1 | 15,6  | 10,50 |
| 4. 5. 0          | 0. 1. 32. 40,6 | 11,7  | 13,73 | 4. 13. 0         | 0. 1. 22. 28,6 | 13,8  | 12,21 | 4. 21. 0         | 0. 1. 10. 43,5 | 15,6  | 10,46 |
| 4. 5. 10         | 0. 1. 32. 28,9 | 11,8  | 13,70 | 4. 13. 10        | 0. 1. 22. 14,8 | 13,8  | 12,17 | 4. 21. 10        | 0. 1. 10. 28,0 | 15,6  | 10,43 |
| 4. 5. 20         | 0. 1. 32. 17,1 | 11,8  | 13,67 | 4. 13. 20        | 0. 1. 22. 01,0 | 13,8  | 12,14 | 4. 21. 20        | 0. 1. 10. 12,4 | 15,7  | 10,39 |
| 4. 5. 30         | 0. 1. 32. 5,3  | 11,9  | 13,64 | 4. 13. 30        | 0. 1. 21. 47,2 | 13,9  | 12,10 | 4. 21. 30        | 0. 1. 9. 56,8  | 15,7  | 10,35 |
| 4. 5. 40         | 0. 1. 31. 53,4 | 11,9  | 13,61 | 4. 13. 40        | 0. 1. 21. 33,3 | 14,0  | 12,07 | 4. 21. 40        | 0. 1. 9. 41,1  | 15,7  | 10,31 |
| 4. 5. 50         | 0. 1. 31. 41,5 | 12,0  | 13,58 | 4. 13. 50        | 0. 1. 21. 19,3 | 14,0  | 12,04 | 4. 21. 50        | 0. 1. 9. 25,4  | 15,8  | 10,27 |
| 4. 6. 0          | 0. 1. 31. 29,6 | 12,0  | 13,55 | 4. 14. 0         | 0. 1. 21. 5,3  | 14,1  | 12,00 | 4. 22. 0         | 0. 1. 9. 9,6   | 15,8  | 10,23 |
| 4. 6. 10         | 0. 1. 31. 17,6 | 12,1  | 13,52 | 4. 14. 10        | 0. 1. 20. 51,3 | 14,1  | 11,97 | 4. 22. 10        | 0. 1. 8. 53,8  | 15,9  | 10,19 |
| 4. 6. 20         | 0. 1. 31. 5,6  | 12,1  | 13,49 | 4. 14. 20        | 0. 1. 20. 37,2 | 14,1  | 11,93 | 4. 22. 20        | 0. 1. 8. 37,9  | 15,9  | 10,15 |
| 4. 6. 30         | 0. 1. 30. 53,5 | 12,1  | 13,46 | 4. 14. 30        | 0. 1. 20. 23,1 | 14,2  | 11,90 | 4. 22. 30        | 0. 1. 8. 22,1  | 16,0  | 10,11 |
| 4. 6. 40         | 0. 1. 30. 41,4 | 12,2  | 13,43 | 4. 14. 40        | 0. 1. 20. 9,0  | 14,2  | 11,86 | 4. 22. 40        | 0. 1. 8. 6,2   | 16,0  | 10,07 |
| 4. 6. 50         | 0. 1. 30. 29,2 | 12,2  | 13,40 | 4. 14. 50        | 0. 1. 19. 54,8 | 14,3  | 11,83 | 4. 22. 50        | 0. 1. 7. 50,3  | 16,1  | 10,04 |
| 4. 7. 0          | 0. 1. 30. 17,0 | 12,3  | 13,37 | 4. 15. 0         | 0. 1. 19. 40,6 | 14,3  | 11,79 | 4. 23. 0         | 0. 1. 7. 34,4  | 16,1  | 10,00 |
| 4. 7. 10         | 0. 1. 30. 4,7  | 12,3  | 13,34 | 4. 15. 10        | 0. 1. 19. 26,3 | 14,4  | 11,76 | 4. 23. 10        | 0. 1. 7. 18,4  | 16,1  | 9,95  |
| 4. 7. 20         | 0. 1. 29. 52,4 | 12,3  | 13,31 | 4. 15. 20        | 0. 1. 19. 12,0 | 14,4  | 11,72 | 4. 23. 20        | 0. 1. 7. 2,3   | 16,1  | 9,91  |
| 4. 7. 30         | 0. 1. 29. 40,1 | 12,4  | 13,28 | 4. 15. 30        | 0. 1. 18. 57,7 | 14,4  | 11,69 | 4. 23. 30        | 0. 1. 6. 46,3  | 16,1  | 9,88  |
| 4. 7. 40         | 0. 1. 29. 27,7 | 12,4  | 13,25 | 4. 15. 40        | 0. 1. 18. 43,3 | 14,4  | 11,65 | 4. 23. 40        | 0. 1. 6. 30,2  | 16,1  | 9,84  |
| 4. 7. 50         | 0. 1. 29. 15,3 | 12,5  | 13,22 | 4. 15. 50        | 0. 1. 18. 28,9 | 14,4  | 11,61 | 4. 23. 50        | 0. 1. 6. 14,1  | 16,1  | 9,80  |
| 4. 8. 0          | 0. 1. 29. 2,8  | 12,5  | 13,19 | 4. 16. 0         | 0. 1. 18. 14,5 | 14,4  | 11,58 | 4. 24. 0         | 0. 1. 5. 58,0  | 16,1  | 9,76  |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.      | Diff. | S. V. |
|------------------|----------------|-------|-------|------------------|----------------|-------|-------|------------------|----------------|-------|-------|
| S. D. M.         | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    | S. D. M.         | S. D. M. S.    | S.    | S.    |
| 4. 24. 0         | O. I. 5. 58,0  | 16,2  | 9,76  | 5. 2. 0          | O. O. 52. 27,4 | 17,6  | 7,77  | 5. 10. 0         | O. O. 37. 58,1 | 18,6  | 5,65  |
| 4. 24. 10        | O. I. 5. 41,8  | 16,2  | 9,72  | 5. 2. 10         | O. O. 52. 9,8  | 17,6  | 7,73  | 5. 10. 10        | O. O. 37. 39,5 | 18,7  | 5,60  |
| 4. 24. 20        | O. I. 5. 25,6  | 16,3  | 9,68  | 5. 2. 20         | O. O. 51. 52,2 | 17,6  | 7,69  | 5. 10. 20        | O. O. 37. 20,8 | 18,7  | 5,56  |
| 4. 24. 30        | O. I. 5. 9,3   | 16,3  | 9,64  | 5. 2. 30         | O. O. 51. 34,6 | 17,6  | 7,64  | 5. 10. 30        | O. O. 37. 2,1  | 18,7  | 5,51  |
| 4. 24. 40        | O. I. 4. 53,0  | 16,3  | 9,60  | 5. 2. 40         | O. O. 51. 17,0 | 17,7  | 7,60  | 5. 10. 40        | O. O. 36. 43,4 | 18,7  | 5,47  |
| 4. 24. 50        | O. I. 4. 36,7  | 16,3  | 9,56  | 5. 2. 50         | O. O. 50. 59,3 | 17,7  | 7,56  | 5. 10. 50        | O. O. 36. 24,7 | 18,7  | 5,42  |
| 4. 25. 0         | O. I. 4. 20,4  | 16,4  | 9,52  | 5. 3. 0          | O. O. 50. 41,6 | 17,7  | 7,51  | 5. 11. 0         | O. O. 36. 6,0  | 18,7  | 5,38  |
| 4. 25. 10        | O. I. 4. 4,0   | 16,4  | 9,48  | 5. 3. 10         | O. O. 50. 23,9 | 17,8  | 7,47  | 5. 11. 10        | O. O. 35. 47,3 | 18,7  | 5,33  |
| 4. 25. 20        | O. I. 3. 47,6  | 16,4  | 9,44  | 5. 3. 20         | O. O. 50. 6,1  | 17,7  | 7,43  | 5. 11. 20        | O. O. 35. 28,6 | 18,8  | 5,29  |
| 4. 25. 30        | O. I. 3. 31,2  | 16,5  | 9,40  | 5. 3. 30         | O. O. 49. 48,4 | 17,8  | 7,38  | 5. 11. 30        | O. O. 35. 9,8  | 18,8  | 5,24  |
| 4. 25. 40        | O. I. 3. 14,7  | 16,5  | 9,36  | 5. 3. 40         | O. O. 49. 30,6 | 17,8  | 7,34  | 5. 11. 40        | O. O. 34. 51,0 | 18,8  | 5,19  |
| 4. 25. 50        | O. I. 2. 58,2  | 16,5  | 9,32  | 5. 3. 50         | O. O. 49. 12,8 | 17,9  | 7,30  | 5. 11. 50        | O. O. 34. 32,2 | 18,8  | 5,15  |
| 4. 26. 0         | O. I. 2. 41,7  | 16,6  | 9,28  | 5. 4. 0          | O. O. 48. 54,9 | 17,8  | 7,25  | 5. 12. 0         | O. O. 34. 13,4 | 18,8  | 5,10  |
| 4. 26. 10        | O. I. 2. 25,1  | 16,6  | 9,24  | 5. 4. 10         | O. O. 48. 37,1 | 17,9  | 7,21  | 5. 12. 10        | O. O. 33. 54,6 | 18,9  | 5,06  |
| 4. 26. 20        | O. I. 2. 8,5   | 16,6  | 9,20  | 5. 4. 20         | O. O. 48. 19,2 | 17,9  | 7,17  | 5. 12. 20        | O. O. 33. 35,7 | 18,8  | 5,01  |
| 4. 26. 30        | O. I. 1. 51,9  | 16,6  | 9,16  | 5. 4. 30         | O. O. 48. 1,3  | 18,0  | 7,12  | 5. 12. 30        | O. O. 33. 16,9 | 18,9  | 4,96  |
| 4. 26. 40        | O. I. 1. 35,3  | 16,7  | 9,12  | 5. 4. 40         | O. O. 47. 43,3 | 17,9  | 7,08  | 5. 12. 40        | O. O. 32. 58,0 | 18,9  | 4,92  |
| 4. 26. 50        | O. I. 1. 18,6  | 16,8  | 9,07  | 5. 4. 50         | O. O. 47. 25,4 | 18,0  | 7,03  | 5. 12. 50        | O. O. 32. 39,1 | 18,9  | 4,87  |
| 4. 27. 0         | O. I. 1. 1,8   | 16,7  | 9,03  | 5. 5. 0          | O. O. 47. 7,4  | 18,0  | 6,99  | 5. 13. 0         | O. O. 32. 20,2 | 19,0  | 4,83  |
| 4. 27. 10        | O. I. 0. 45,1  | 16,7  | 8,99  | 5. 5. 10         | O. O. 46. 49,4 | 18,0  | 6,95  | 5. 13. 10        | O. O. 32. 1,2  | 18,9  | 4,78  |
| 4. 27. 20        | O. I. 0. 28,4  | 16,8  | 8,95  | 5. 5. 20         | O. O. 46. 31,4 | 18,0  | 6,90  | 5. 13. 20        | O. O. 31. 42,3 | 19,0  | 4,73  |
| 4. 27. 30        | O. I. 0. 11,6  | 16,9  | 8,91  | 5. 5. 30         | O. O. 46. 13,4 | 18,1  | 6,86  | 5. 13. 30        | O. O. 31. 23,3 | 18,9  | 4,69  |
| 4. 27. 40        | O. O. 59. 54,7 | 16,9  | 8,87  | 5. 5. 40         | O. O. 45. 55,3 | 18,1  | 6,83  | 5. 13. 40        | O. O. 31. 4,4  | 19,0  | 4,64  |
| 4. 27. 50        | O. O. 59. 37,9 | 16,8  | 8,83  | 5. 5. 50         | O. O. 45. 37,2 | 18,1  | 6,77  | 5. 13. 50        | O. O. 30. 45,4 | 19,1  | 4,59  |
| 4. 28. 0         | O. O. 59. 21,0 | 16,9  | 8,79  | 5. 6. 0          | O. O. 45. 19,1 | 18,2  | 6,73  | 5. 14. 0         | O. O. 30. 26,3 | 19,0  | 4,55  |
| 4. 28. 10        | O. O. 59. 4,1  | 16,9  | 8,75  | 5. 6. 10         | O. O. 45. 0,9  | 18,1  | 6,68  | 5. 14. 10        | O. O. 30. 7,3  | 19,0  | 4,50  |
| 4. 28. 20        | O. O. 58. 47,2 | 17,0  | 8,70  | 5. 6. 20         | O. O. 44. 42,8 | 18,2  | 6,64  | 5. 14. 20        | O. O. 29. 48,3 | 19,1  | 4,46  |
| 4. 28. 30        | O. O. 58. 30,2 | 17,0  | 8,66  | 5. 6. 30         | O. O. 44. 24,6 | 18,2  | 6,59  | 5. 14. 30        | O. O. 29. 29,2 | 19,0  | 4,41  |
| 4. 28. 40        | O. O. 58. 13,2 | 17,1  | 8,62  | 5. 6. 40         | O. O. 44. 6,4  | 18,3  | 6,55  | 5. 14. 40        | O. O. 29. 10,2 | 19,1  | 4,36  |
| 4. 28. 50        | O. O. 57. 56,1 | 17,0  | 8,58  | 5. 6. 50         | O. O. 43. 48,1 | 18,2  | 6,50  | 5. 14. 50        | O. O. 28. 51,1 | 19,1  | 4,32  |
| 4. 29. 0         | O. O. 57. 39,1 | 17,1  | 8,54  | 5. 7. 0          | O. O. 43. 29,9 | 18,2  | 6,46  | 5. 15. 0         | O. O. 28. 32,0 | 19,1  | 4,27  |
| 4. 29. 10        | O. O. 57. 22,0 | 17,1  | 8,49  | 5. 7. 10         | O. O. 43. 11,7 | 18,3  | 6,41  | 5. 15. 10        | O. O. 28. 12,9 | 19,1  | 4,22  |
| 4. 29. 20        | O. O. 57. 4,9  | 17,2  | 8,45  | 5. 7. 20         | O. O. 42. 53,4 | 18,3  | 6,37  | 5. 15. 20        | O. O. 27. 53,8 | 19,2  | 4,18  |
| 4. 29. 30        | O. O. 56. 47,7 | 17,2  | 8,41  | 5. 7. 30         | O. O. 42. 35,1 | 18,4  | 6,33  | 5. 15. 30        | O. O. 27. 34,6 | 19,1  | 4,13  |
| 4. 29. 40        | O. O. 56. 30,6 | 17,2  | 8,37  | 5. 7. 40         | O. O. 42. 16,7 | 18,3  | 6,28  | 5. 15. 40        | O. O. 27. 15,5 | 19,2  | 4,08  |
| 4. 29. 50        | O. O. 56. 13,4 | 17,2  | 8,33  | 5. 7. 50         | O. O. 41. 58,4 | 18,4  | 6,24  | 5. 15. 50        | O. O. 26. 56,3 | 19,2  | 4,04  |
| 5. 0. 0          | O. O. 55. 56,2 | 17,3  | 8,28  | 5. 8. 0          | O. O. 41. 40,0 | 18,4  | 6,19  | 5. 16. 0         | O. O. 26. 37,1 | 19,2  | 3,99  |
| 5. 0. 10         | O. O. 55. 38,9 | 17,3  | 8,24  | 5. 8. 10         | O. O. 41. 21,6 | 18,4  | 6,15  | 5. 16. 10        | O. O. 26. 17,9 | 19,2  | 3,94  |
| 5. 0. 20         | O. O. 55. 21,6 | 17,3  | 8,20  | 5. 8. 20         | O. O. 41. 3,2  | 18,4  | 6,10  | 5. 16. 20        | O. O. 25. 58,7 | 19,2  | 3,90  |
| 5. 0. 30         | O. O. 55. 4,3  | 17,3  | 8,16  | 5. 8. 30         | O. O. 40. 44,8 | 18,5  | 6,06  | 5. 16. 30        | O. O. 25. 39,5 | 19,2  | 3,85  |
| 5. 0. 40         | O. O. 54. 47,0 | 17,4  | 8,11  | 5. 8. 40         | O. O. 40. 26,3 | 18,4  | 6,01  | 5. 16. 40        | O. O. 25. 20,3 | 19,2  | 3,80  |
| 5. 0. 50         | O. O. 54. 29,6 | 17,4  | 8,07  | 5. 8. 50         | O. O. 40. 7,9  | 18,5  | 5,97  | 5. 16. 50        | O. O. 25. 1,1  | 19,3  | 3,76  |
| 5. 1. 0          | O. O. 54. 12,2 | 17,4  | 8,03  | 5. 9. 0          | O. O. 39. 49,4 | 18,5  | 5,92  | 5. 17. 0         | O. O. 24. 41,8 | 19,3  | 3,71  |
| 5. 1. 10         | O. O. 53. 54,8 | 17,4  | 7,99  | 5. 9. 10         | O. O. 39. 30,9 | 18,5  | 5,87  | 5. 17. 10        | O. O. 24. 22,5 | 19,3  | 3,66  |
| 5. 1. 20         | O. O. 53. 37,4 | 17,5  | 7,94  | 5. 9. 20         | O. O. 39. 12,4 | 18,6  | 5,83  | 5. 17. 20        | O. O. 24. 3,3  | 19,2  | 3,62  |
| 5. 1. 30         | O. O. 53. 19,9 | 17,5  | 7,90  | 5. 9. 30         | O. O. 38. 53,8 | 18,6  | 5,78  | 5. 17. 30        | O. O. 23. 44,0 | 19,3  | 3,57  |
| 5. 1. 40         | O. O. 53. 2,4  | 17,5  | 7,86  | 5. 9. 40         | O. O. 38. 35,2 | 18,5  | 5,72  | 5. 17. 40        | O. O. 23. 24,7 | 19,3  | 3,52  |
| 5. 1. 50         | O. O. 52. 44,9 | 17,5  | 7,82  | 5. 9. 50         | O. O. 38. 16,7 | 18,6  | 5,69  | 5. 17. 50        | O. O. 23. 5,4  | 19,4  | 3,48  |
| 5. 2. 0          | O. O. 52. 27,4 | 17,5  | 7,77  | 5. 10. 0         | O. O. 37. 58,1 | 18,6  | 5,65  | 5. 18. 0         | O. O. 22. 46,0 | 19,4  | 3,43  |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.      | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. |
|------------------|----------------|-------|-------|------------------|------------------|-------|-------|------------------|------------------|-------|-------|
| S. D. M.         | S. D. M. S.    | —     | —     | S. D. M.         | S. D. M. S.      | —     | —     | S. D. M.         | S. D. M. S.      | —     | +     |
| 5. 18. 0         | 0. 0. 22. 46,0 | 19,3  | 3,43  | 5. 26. 0         | 0. 0. 7. 8,3     | 19,7  | 1,16  | 6. 4. 0          | 11. 29. 51. 21,7 | 19,6  | 1,16  |
| 5. 18. 10        | 0. 0. 22. 26,7 | 19,4  | 3,38  | 5. 26. 10        | 0. 0. 6. 48,6    | 19,7  | 1,11  | 6. 4. 10         | 11. 29. 51. 2,1  | 19,7  | 1,21  |
| 5. 18. 20        | 0. 0. 22. 7,3  | 19,3  | 3,34  | 5. 26. 20        | 0. 0. 6. 28,9    | 19,7  | 1,06  | 6. 4. 20         | 11. 29. 50. 42,4 | 19,7  | 1,25  |
| 5. 18. 30        | 0. 0. 21. 48,0 | 19,4  | 3,29  | 5. 26. 30        | 0. 0. 6. 9,2     | 19,7  | 1,01  | 6. 4. 30         | 11. 29. 50. 22,7 | 19,7  | 1,30  |
| 5. 18. 40        | 0. 0. 21. 28,6 | 19,3  | 3,24  | 5. 26. 40        | 0. 0. 5. 49,5    | 19,7  | 0,96  | 6. 4. 40         | 11. 29. 50. 3,0  | 19,7  | 1,35  |
| 5. 18. 50        | 0. 0. 21. 9,3  | 19,4  | 3,19  | 5. 26. 50        | 0. 0. 5. 29,8    | 19,7  | 0,91  | 6. 4. 50         | 11. 29. 49. 43,3 | 19,6  | 1,39  |
| 5. 19. 0         | 0. 0. 20. 49,9 | 19,4  | 3,15  | 5. 27. 0         | 0. 0. 5. 10,1    | 19,7  | 0,86  | 6. 5. 0          | 11. 29. 49. 23,7 | 19,6  | 1,44  |
| 5. 19. 10        | 0. 0. 20. 30,5 | 19,5  | 3,10  | 5. 27. 10        | 0. 0. 4. 50,4    | 19,8  | 0,81  | 6. 5. 10         | 11. 29. 49. 4,1  | 19,7  | 1,48  |
| 5. 19. 20        | 0. 0. 20. 11,0 | 19,4  | 3,05  | 5. 27. 20        | 0. 0. 4. 30,6    | 19,7  | 0,77  | 6. 5. 20         | 11. 29. 48. 44,4 | 19,6  | 1,53  |
| 5. 19. 30        | 0. 0. 19. 51,6 | 19,4  | 3,00  | 5. 27. 30        | 0. 0. 4. 10,9    | 19,7  | 0,72  | 6. 5. 30         | 11. 29. 48. 24,8 | 19,6  | 1,58  |
| 5. 19. 40        | 0. 0. 19. 32,2 | 19,4  | 2,95  | 5. 27. 40        | 0. 0. 3. 51,2    | 19,7  | 0,67  | 6. 5. 40         | 11. 29. 48. 5,2  | 19,7  | 1,63  |
| 5. 19. 50        | 0. 0. 19. 12,8 | 19,4  | 2,91  | 5. 27. 50        | 0. 0. 3. 31,5    | 19,7  | 0,62  | 6. 5. 50         | 11. 29. 47. 45,5 | 19,7  | 1,67  |
| 5. 20. 0         | 0. 0. 18. 53,4 | 19,5  | 2,86  | 5. 28. 0         | 0. 0. 3. 11,8    | 19,8  | 0,57  | 6. 6. 0          | 11. 29. 47. 25,8 | 19,6  | 1,72  |
| 5. 20. 10        | 0. 0. 18. 33,9 | 19,5  | 2,82  | 5. 28. 10        | 0. 0. 2. 52,0    | 19,7  | 0,53  | 6. 6. 10         | 11. 29. 47. 06,2 | 19,6  | 1,77  |
| 5. 20. 20        | 0. 0. 18. 14,4 | 19,4  | 2,77  | 5. 28. 20        | 0. 0. 2. 32,3    | 19,7  | 0,48  | 6. 6. 20         | 11. 29. 46. 46,6 | 19,6  | 1,82  |
| 5. 20. 30        | 0. 0. 17. 55,0 | 19,5  | 2,72  | 5. 28. 30        | 0. 0. 2. 12,6    | 19,7  | 0,43  | 6. 6. 30         | 11. 29. 46. 27,0 | 19,6  | 1,87  |
| 5. 20. 40        | 0. 0. 17. 35,5 | 19,5  | 2,67  | 5. 28. 40        | 0. 0. 1. 52,9    | 19,8  | 0,38  | 6. 6. 40         | 11. 29. 46. 07,4 | 19,6  | 1,91  |
| 5. 20. 50        | 0. 0. 17. 16,0 | 19,5  | 2,63  | 5. 28. 50        | 0. 0. 1. 33,1    | 19,7  | 0,33  | 6. 6. 50         | 11. 29. 45. 47,8 | 19,6  | 1,96  |
| 5. 21. 0         | 0. 0. 16. 56,5 | 19,5  | 2,58  | 5. 29. 0         | 0. 0. 1. 13,4    | 19,7  | 0,29  | 6. 7. 0          | 11. 29. 45. 28,2 | 19,6  | 2,01  |
| 5. 21. 10        | 0. 0. 16. 37,0 | 19,6  | 2,53  | 5. 29. 10        | 0. 0. 0. 53,7    | 19,8  | 0,24  | 6. 7. 10         | 11. 29. 45. 08,6 | 19,6  | 2,06  |
| 5. 21. 20        | 0. 0. 16. 17,4 | 19,5  | 2,49  | 5. 29. 20        | 0. 0. 0. 33,9    | 19,7  | 0,19  | 6. 7. 20         | 11. 29. 44. 49,0 | 19,6  | 2,10  |
| 5. 21. 30        | 0. 0. 15. 57,9 | 19,5  | 2,44  | 5. 29. 30        | 0. 0. 0. 14,2    | 19,7  | 0,15  | 6. 7. 30         | 11. 29. 44. 29,4 | 19,5  | 2,15  |
| 5. 21. 40        | 0. 0. 15. 38,4 | 19,6  | 2,39  | 5. 29. 40        | 11. 29. 59. 54,5 | 19,7  | 0,10  | 6. 7. 40         | 11. 29. 44. 9,9  | 19,6  | 2,20  |
| 5. 21. 50        | 0. 0. 15. 18,8 | 19,5  | 2,34  | 5. 29. 50        | 11. 29. 59. 34,8 | 19,8  | 0,05  | 6. 7. 50         | 11. 29. 43. 50,3 | 19,6  | 2,25  |
| 5. 22. 0         | 0. 0. 14. 59,3 | 19,6  | 2,29  | 6. 0. 0          | 11. 29. 59. 15,0 | 19,8  | 0,00  | 6. 8. 0          | 11. 29. 43. 30,7 | 19,5  | 2,29  |
| 5. 22. 10        | 0. 0. 14. 39,7 | 19,6  | 2,25  | 6. 0. 10         | 11. 29. 58. 55,3 | 19,8  | 0,05  | 6. 8. 10         | 11. 29. 43. 11,2 | 19,6  | 2,35  |
| 5. 22. 20        | 0. 0. 14. 20,1 | 19,5  | 2,20  | 6. 0. 20         | 11. 29. 58. 35,5 | 19,7  | 0,10  | 6. 8. 20         | 11. 29. 42. 51,6 | 19,5  | 2,39  |
| 5. 22. 30        | 0. 0. 14. 0,6  | 19,6  | 2,15  | 6. 0. 30         | 11. 29. 58. 15,8 | 19,7  | 0,15  | 6. 8. 30         | 11. 29. 42. 32,1 | 19,5  | 2,44  |
| 5. 22. 40        | 0. 0. 13. 41,0 | 19,6  | 2,10  | 6. 0. 40         | 11. 29. 57. 56,1 | 19,8  | 0,19  | 6. 8. 40         | 11. 29. 42. 12,6 | 19,5  | 2,49  |
| 5. 22. 50        | 0. 0. 13. 21,4 | 19,6  | 2,06  | 6. 0. 50         | 11. 29. 57. 36,3 | 19,7  | 0,24  | 6. 8. 50         | 11. 29. 41. 53,1 | 19,6  | 2,53  |
| 5. 23. 0         | 0. 0. 13. 1,8  | 19,6  | 2,01  | 6. 1. 0          | 11. 29. 57. 16,6 | 19,7  | 0,29  | 6. 9. 0          | 11. 29. 41. 33,5 | 19,5  | 2,58  |
| 5. 23. 10        | 0. 0. 12. 42,2 | 19,6  | 1,96  | 6. 1. 10         | 11. 29. 56. 56,9 | 19,8  | 0,33  | 6. 9. 10         | 11. 29. 41. 14,0 | 19,5  | 2,63  |
| 5. 23. 20        | 0. 0. 12. 22,6 | 19,6  | 1,91  | 6. 1. 20         | 11. 29. 56. 37,1 | 19,7  | 0,38  | 6. 9. 20         | 11. 29. 40. 54,5 | 19,5  | 2,67  |
| 5. 23. 30        | 0. 0. 12. 3,0  | 19,6  | 1,87  | 6. 1. 30         | 11. 29. 56. 17,4 | 19,7  | 0,43  | 6. 9. 30         | 11. 29. 40. 35,0 | 19,4  | 2,72  |
| 5. 23. 40        | 0. 0. 11. 43,4 | 19,6  | 1,82  | 6. 1. 40         | 11. 29. 55. 57,7 | 19,7  | 0,48  | 6. 9. 40         | 11. 29. 40. 15,6 | 19,5  | 2,77  |
| 5. 23. 50        | 0. 0. 11. 23,8 | 19,6  | 1,77  | 6. 1. 50         | 11. 29. 55. 38,0 | 19,8  | 0,53  | 6. 9. 50         | 11. 29. 39. 56,1 | 19,5  | 2,82  |
| 5. 24. 0         | 0. 0. 11. 4,2  | 19,7  | 1,72  | 6. 2. 0          | 11. 29. 55. 18,2 | 19,7  | 0,57  | 6. 10. 0         | 11. 29. 39. 36,6 | 19,4  | 2,86  |
| 5. 24. 10        | 0. 0. 10. 44,5 | 19,7  | 1,67  | 6. 2. 10         | 11. 29. 54. 58,5 | 19,7  | 0,62  | 6. 10. 10        | 11. 29. 39. 17,2 | 19,4  | 2,91  |
| 5. 24. 20        | 0. 0. 10. 24,8 | 19,6  | 1,63  | 6. 2. 20         | 11. 29. 54. 38,8 | 19,7  | 0,67  | 6. 10. 20        | 11. 29. 38. 57,8 | 19,4  | 2,96  |
| 5. 24. 30        | 0. 0. 10. 5,2  | 19,6  | 1,58  | 6. 2. 30         | 11. 29. 54. 19,1 | 19,7  | 0,72  | 6. 10. 30        | 11. 29. 38. 38,4 | 19,4  | 3,00  |
| 5. 24. 40        | 0. 0. 9. 45,6  | 19,7  | 1,53  | 6. 2. 40         | 11. 29. 53. 59,4 | 19,8  | 0,77  | 6. 10. 40        | 11. 29. 38. 19,0 | 19,5  | 3,05  |
| 5. 24. 50        | 0. 0. 9. 25,9  | 19,6  | 1,48  | 6. 2. 50         | 11. 29. 53. 39,6 | 19,7  | 0,81  | 6. 10. 50        | 11. 29. 37. 59,5 | 19,4  | 3,10  |
| 5. 25. 0         | 0. 0. 9. 6,3   | 19,6  | 1,44  | 6. 3. 0          | 11. 29. 53. 19,9 | 19,7  | 0,86  | 6. 11. 0         | 11. 29. 37. 40,1 | 19,4  | 3,15  |
| 5. 25. 10        | 0. 0. 8. 46,7  | 19,7  | 1,39  | 6. 3. 10         | 11. 29. 53. 00,2 | 19,7  | 0,91  | 6. 11. 10        | 11. 29. 37. 20,7 | 19,3  | 3,19  |
| 5. 25. 20        | 0. 0. 8. 27,0  | 19,7  | 1,35  | 6. 3. 20         | 11. 29. 52. 40,5 | 19,7  | 0,96  | 6. 11. 20        | 11. 29. 37. 1,4  | 19,4  | 3,24  |
| 5. 25. 30        | 0. 0. 8. 7,3   | 19,7  | 1,30  | 6. 3. 30         | 11. 29. 52. 20,8 | 19,7  | 1,01  | 6. 11. 30        | 11. 29. 36. 42,0 | 19,3  | 3,29  |
| 5. 25. 40        | 0. 0. 7. 47,6  | 19,7  | 1,25  | 6. 3. 40         | 11. 29. 52. 1,1  | 19,7  | 1,06  | 6. 11. 40        | 11. 29. 36. 22,7 | 19,4  | 3,34  |
| 5. 25. 50        | 0. 0. 7. 27,9  | 19,6  | 1,21  | 6. 3. 50         | 11. 29. 51. 41,4 | 19,7  | 1,11  | 6. 11. 50        | 11. 29. 36. 3,3  | 19,3  | 3,38  |
| 5. 26. 0         | 0. 0. 7. 8,3   | 19,6  | 1,16  | 6. 4. 0          | 11. 29. 51. 21,7 | 19,7  | 1,16  | 6. 12. 0         | 11. 29. 35. 44,0 | 19,3  | 3,43  |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean Anomaly. | Equation.        | Diff. | S. V. | Mean Anomaly. | Equation.        | Diff. | S. V. | Mean Anomaly. | Equation.        | Diff. | S. V. |
|---------------|------------------|-------|-------|---------------|------------------|-------|-------|---------------|------------------|-------|-------|
| S. D. M.      | S. D. M. S.      | —     | +     | S. D. M.      | S. D. M. S.      | —     | +     | S. D. M.      | S. D. M. S.      | —     | +     |
| 6. 12. 0      | 11. 29. 35. 44,0 | 19,4  | 3,43  | 6. 20. 0      | 11. 29. 20. 31,9 | 18,6  | 5,65  | 6. 28. 0      | 11. 29. 6. 2,6   | 17,5  | 7,77  |
| 6. 12. 10     | 11. 29. 35. 24,6 | 19,3  | 3,48  | 6. 20. 10     | 11. 29. 20. 13,3 | 18,5  | 5,69  | 6. 28. 10     | 11. 29. 5. 45,1  | 17,5  | 7,81  |
| 6. 12. 20     | 11. 29. 35. 5,3  | 19,3  | 3,52  | 6. 20. 20     | 11. 29. 19. 54,8 | 18,6  | 5,73  | 6. 28. 20     | 11. 29. 5. 27,6  | 17,5  | 7,85  |
| 6. 12. 30     | 11. 29. 34. 46,0 | 19,3  | 3,57  | 6. 20. 30     | 11. 29. 19. 36,2 | 18,6  | 5,78  | 6. 28. 30     | 11. 29. 5. 10,1  | 17,5  | 7,90  |
| 6. 12. 40     | 11. 29. 34. 26,7 | 19,2  | 3,62  | 6. 20. 40     | 11. 29. 19. 17,6 | 18,5  | 5,83  | 6. 28. 40     | 11. 29. 4. 52,6  | 17,4  | 7,94  |
| 6. 12. 50     | 11. 29. 34. 7,5  | 19,3  | 3,66  | 6. 20. 50     | 11. 29. 18. 59,1 | 18,5  | 5,87  | 6. 28. 50     | 11. 29. 4. 35,2  | 17,4  | 7,99  |
| 6. 13. 0      | 11. 29. 33. 48,2 | 19,3  | 3,71  | 6. 21. 0      | 11. 29. 18. 40,6 | 18,5  | 5,92  | 6. 29. 0      | 11. 29. 4. 17,8  | 17,4  | 8,03  |
| 6. 13. 10     | 11. 29. 33. 28,9 | 19,3  | 3,76  | 6. 21. 10     | 11. 29. 18. 22,1 | 18,4  | 5,97  | 6. 29. 10     | 11. 29. 4. 0,4   | 17,4  | 8,07  |
| 6. 13. 20     | 11. 29. 33. 9,7  | 19,2  | 3,80  | 6. 21. 20     | 11. 29. 18. 3,7  | 18,5  | 6,01  | 6. 29. 20     | 11. 29. 3. 43,0  | 17,3  | 8,11  |
| 6. 13. 30     | 11. 29. 32. 50,5 | 19,2  | 3,85  | 6. 21. 30     | 11. 29. 17. 45,2 | 18,4  | 6,06  | 6. 29. 30     | 11. 29. 3. 25,7  | 17,3  | 8,16  |
| 6. 13. 40     | 11. 29. 32. 31,3 | 19,2  | 3,90  | 6. 21. 40     | 11. 29. 17. 26,8 | 18,4  | 6,10  | 6. 29. 40     | 11. 29. 3. 8,4   | 17,3  | 8,20  |
| 6. 13. 50     | 11. 29. 32. 12,1 | 19,2  | 3,94  | 6. 21. 50     | 11. 29. 17. 8,4  | 18,4  | 6,15  | 6. 29. 50     | 11. 29. 2. 51,1  | 17,3  | 8,24  |
| 6. 14. 0      | 11. 29. 31. 52,9 | 19,2  | 3,99  | 6. 22. 0      | 11. 29. 16. 50,0 | 18,4  | 6,19  | 7. 0. 0       | 11. 29. 2. 33,8  | 17,2  | 8,28  |
| 6. 14. 10     | 11. 29. 31. 33,7 | 19,2  | 4,04  | 6. 22. 10     | 11. 29. 16. 31,6 | 18,3  | 6,24  | 7. 0. 10      | 11. 29. 2. 16,6  | 17,2  | 8,33  |
| 6. 14. 20     | 11. 29. 31. 14,5 | 19,1  | 4,08  | 6. 22. 20     | 11. 29. 16. 13,3 | 18,4  | 6,28  | 7. 0. 20      | 11. 29. 1. 59,4  | 17,1  | 8,37  |
| 6. 14. 30     | 11. 29. 30. 55,4 | 19,2  | 4,13  | 6. 22. 30     | 11. 29. 15. 54,9 | 18,3  | 6,33  | 7. 0. 30      | 11. 29. 1. 42,3  | 17,2  | 8,41  |
| 6. 14. 40     | 11. 29. 30. 36,2 | 19,1  | 4,18  | 6. 22. 40     | 11. 29. 15. 36,6 | 18,3  | 6,37  | 7. 0. 40      | 11. 29. 1. 25,1  | 17,1  | 8,45  |
| 6. 14. 50     | 11. 29. 30. 17,1 | 19,1  | 4,22  | 6. 22. 50     | 11. 29. 15. 18,3 | 18,2  | 6,41  | 7. 0. 50      | 11. 29. 1. 8,0   | 17,1  | 8,49  |
| 6. 15. 0      | 11. 29. 29. 58,0 | 19,1  | 4,27  | 6. 23. 0      | 11. 29. 15. 00,1 | 18,2  | 6,46  | 7. 1. 0       | 11. 29. 0. 50,9  | 17,0  | 8,54  |
| 6. 15. 10     | 11. 29. 29. 38,9 | 19,1  | 4,32  | 6. 23. 10     | 11. 29. 14. 41,9 | 18,3  | 6,50  | 7. 1. 10      | 11. 29. 0. 33,9  | 17,1  | 8,58  |
| 6. 15. 20     | 11. 29. 29. 19,8 | 19,0  | 4,36  | 6. 23. 20     | 11. 29. 14. 23,6 | 18,2  | 6,55  | 7. 1. 20      | 11. 29. 0. 16,8  | 17,0  | 8,62  |
| 6. 15. 30     | 11. 29. 29. 0,8  | 19,1  | 4,41  | 6. 23. 30     | 11. 29. 14. 5,4  | 18,2  | 6,59  | 7. 1. 30      | 11. 28. 59. 59,8 | 17,0  | 8,66  |
| 6. 15. 40     | 11. 29. 28. 41,7 | 19,0  | 4,46  | 6. 23. 40     | 11. 29. 13. 47,2 | 18,1  | 6,64  | 7. 1. 40      | 11. 28. 59. 42,8 | 16,9  | 8,70  |
| 6. 15. 50     | 11. 29. 28. 22,7 | 19,0  | 4,50  | 6. 23. 50     | 11. 29. 13. 29,1 | 18,2  | 6,68  | 7. 1. 50      | 11. 28. 59. 25,9 | 16,9  | 8,75  |
| 6. 16. 0      | 11. 29. 28. 3,7  | 19,1  | 4,55  | 6. 24. 0      | 11. 29. 13. 10,9 | 18,1  | 6,73  | 7. 2. 0       | 11. 28. 59. 9,0  | 16,9  | 8,79  |
| 6. 16. 10     | 11. 29. 27. 44,6 | 19,0  | 4,59  | 6. 24. 10     | 11. 29. 12. 52,8 | 18,1  | 6,77  | 7. 2. 10      | 11. 28. 58. 52,1 | 16,8  | 8,83  |
| 6. 16. 20     | 11. 29. 27. 25,6 | 18,9  | 4,64  | 6. 24. 20     | 11. 29. 12. 34,7 | 18,0  | 6,81  | 7. 2. 20      | 11. 28. 58. 35,3 | 16,8  | 8,87  |
| 6. 16. 30     | 11. 29. 27. 6,7  | 19,0  | 4,69  | 6. 24. 30     | 11. 29. 12. 16,6 | 18,0  | 6,86  | 7. 2. 30      | 11. 28. 58. 18,4 | 16,7  | 8,91  |
| 6. 16. 40     | 11. 29. 26. 47,7 | 18,9  | 4,73  | 6. 24. 40     | 11. 29. 11. 58,6 | 18,0  | 6,90  | 7. 2. 40      | 11. 28. 58. 1,6  | 16,7  | 8,95  |
| 6. 16. 50     | 11. 29. 26. 28,8 | 19,0  | 4,78  | 6. 24. 50     | 11. 29. 11. 40,6 | 18,0  | 6,95  | 7. 2. 50      | 11. 28. 57. 44,9 | 16,7  | 8,99  |
| 6. 17. 0      | 11. 29. 26. 9,8  | 18,9  | 4,83  | 6. 25. 0      | 11. 29. 11. 22,6 | 18,0  | 6,99  | 7. 3. 0       | 11. 28. 57. 28,2 | 16,8  | 9,03  |
| 6. 17. 10     | 11. 29. 25. 50,9 | 18,9  | 4,87  | 6. 25. 10     | 11. 29. 11. 4,6  | 17,9  | 7,03  | 7. 3. 10      | 11. 28. 57. 11,4 | 16,7  | 9,07  |
| 6. 17. 20     | 11. 29. 25. 32,0 | 18,9  | 4,92  | 6. 25. 20     | 11. 29. 10. 46,7 | 17,9  | 7,08  | 7. 3. 20      | 11. 28. 56. 54,7 | 16,6  | 9,12  |
| 6. 17. 30     | 11. 29. 25. 13,1 | 18,8  | 4,96  | 6. 25. 30     | 11. 29. 10. 28,7 | 17,9  | 7,12  | 7. 3. 30      | 11. 28. 56. 38,1 | 16,6  | 9,16  |
| 6. 17. 40     | 11. 29. 24. 54,3 | 18,9  | 5,01  | 6. 25. 40     | 11. 29. 10. 10,8 | 17,9  | 7,17  | 7. 3. 40      | 11. 28. 56. 21,5 | 16,6  | 9,20  |
| 6. 17. 50     | 11. 29. 24. 35,4 | 18,8  | 5,06  | 6. 25. 50     | 11. 29. 9. 52,9  | 17,8  | 7,21  | 7. 3. 50      | 11. 28. 56. 4,9  | 16,6  | 9,24  |
| 6. 18. 0      | 11. 29. 24. 16,6 | 18,8  | 5,10  | 6. 26. 0      | 11. 29. 9. 35,1  | 17,9  | 7,25  | 7. 4. 0       | 11. 28. 55. 48,3 | 16,5  | 9,28  |
| 6. 18. 10     | 11. 29. 23. 57,8 | 18,8  | 5,15  | 6. 26. 10     | 11. 29. 9. 17,2  | 17,8  | 7,30  | 7. 4. 10      | 11. 28. 55. 31,8 | 16,5  | 9,32  |
| 6. 18. 20     | 11. 29. 23. 39,0 | 18,8  | 5,19  | 6. 26. 20     | 11. 29. 8. 59,4  | 17,8  | 7,34  | 7. 4. 20      | 11. 28. 55. 15,3 | 16,5  | 9,36  |
| 6. 18. 30     | 11. 29. 23. 20,2 | 18,8  | 5,24  | 6. 26. 30     | 11. 29. 8. 41,6  | 17,7  | 7,38  | 7. 4. 30      | 11. 28. 54. 58,8 | 16,4  | 9,40  |
| 6. 18. 40     | 11. 29. 23. 1,4  | 18,7  | 5,29  | 6. 26. 40     | 11. 29. 8. 23,9  | 17,7  | 7,43  | 7. 4. 40      | 11. 28. 54. 42,4 | 16,4  | 9,44  |
| 6. 18. 50     | 11. 29. 22. 42,7 | 18,7  | 5,33  | 6. 26. 50     | 11. 29. 8. 6,1   | 17,7  | 7,47  | 7. 4. 50      | 11. 28. 54. 26,0 | 16,4  | 9,48  |
| 6. 19. 0      | 11. 29. 22. 24,0 | 18,7  | 5,38  | 6. 27. 0      | 11. 29. 7. 48,4  | 17,7  | 7,51  | 7. 5. 0       | 11. 28. 54. 9,6  | 16,3  | 9,52  |
| 6. 19. 10     | 11. 29. 22. 5,3  | 18,7  | 5,42  | 6. 27. 10     | 11. 29. 7. 30,7  | 17,7  | 7,56  | 7. 5. 10      | 11. 28. 53. 53,3 | 16,3  | 9,56  |
| 6. 19. 20     | 11. 29. 21. 46,6 | 18,7  | 5,47  | 6. 27. 20     | 11. 29. 7. 13,0  | 17,6  | 7,60  | 7. 5. 20      | 11. 28. 53. 37,0 | 16,3  | 9,60  |
| 6. 19. 30     | 11. 29. 21. 27,9 | 18,7  | 5,51  | 6. 27. 30     | 11. 29. 6. 55,4  | 17,6  | 7,64  | 7. 5. 30      | 11. 28. 53. 20,7 | 16,3  | 9,64  |
| 6. 19. 40     | 11. 29. 21. 9,2  | 18,7  | 5,56  | 6. 27. 40     | 11. 29. 6. 37,8  | 17,7  | 7,69  | 7. 5. 40      | 11. 28. 52. 4,4  | 16,2  | 9,68  |
| 6. 19. 50     | 11. 29. 20. 50,5 | 18,6  | 5,60  | 6. 27. 50     | 11. 29. 6. 20,1  | 17,5  | 7,73  | 7. 5. 50      | 11. 28. 52. 48,2 | 16,2  | 9,72  |
| 6. 20. 0      | 11. 29. 20. 31,9 | 18,6  | 5,65  | 6. 28. 0      | 11. 29. 6. 2,6   | 17,5  | 7,77  | 7. 6. 0       | 11. 28. 52. 32,0 | 16,2  | 9,76  |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.        | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. |
|------------------|------------------|-------|-------|------------------|------------------|-------|-------|------------------|------------------|-------|-------|
| S. D. M.         | S. D. M. S.      | —     | +     | S. D. M.         | S. D. M. S.      | —     | +     | S. D. M.         | S. D. M. S.      | —     | +     |
| 7. 6. 0          | 11. 28. 52. 32,0 | 16,1  | 9,76  | 7. 14. 0         | 11. 28. 40. 15,5 | 14,4  | 11,58 | 7. 22. 0         | 11. 28. 29. 27,2 | 12,5  | 13,19 |
| 7. 6. 10         | 11. 28. 52. 15,9 | 16,1  | 9,79  | 7. 14. 10        | 11. 28. 40. 1,1  | 14,4  | 11,61 | 7. 22. 10        | 11. 28. 29. 14,7 | 12,4  | 13,22 |
| 7. 6. 20         | 11. 28. 51. 59,8 | 16,1  | 9,84  | 7. 14. 20        | 11. 28. 39. 46,7 | 14,4  | 11,65 | 7. 22. 20        | 11. 28. 29. 2,3  | 12,4  | 13,25 |
| 7. 6. 30         | 11. 28. 51. 43,7 | 16,0  | 9,88  | 7. 14. 30        | 11. 28. 39. 32,3 | 14,3  | 11,69 | 7. 22. 30        | 11. 28. 28. 49,9 | 12,3  | 13,28 |
| 7. 6. 40         | 11. 28. 51. 27,7 | 16,1  | 9,91  | 7. 14. 40        | 11. 28. 39. 18,0 | 14,3  | 11,72 | 7. 22. 40        | 11. 28. 28. 37,6 | 12,3  | 13,31 |
| 7. 6. 50         | 11. 28. 51. 11,6 | 16,0  | 9,95  | 7. 14. 50        | 11. 28. 39. 3,7  | 14,3  | 11,76 | 7. 22. 50        | 11. 28. 28. 25,3 | 12,3  | 13,34 |
| 7. 7. 0          | 11. 28. 50. 55,6 | 15,9  | 10,00 | 7. 15. 0         | 11. 28. 38. 49,4 | 14,2  | 11,79 | 7. 23. 0         | 11. 28. 28. 13,0 | 12,2  | 13,37 |
| 7. 7. 10         | 11. 28. 50. 39,7 | 15,9  | 10,04 | 7. 15. 10        | 11. 28. 38. 35,2 | 14,2  | 11,83 | 7. 23. 10        | 11. 28. 28. 0,8  | 12,2  | 13,40 |
| 7. 7. 20         | 11. 28. 50. 23,8 | 15,9  | 10,07 | 7. 15. 20        | 11. 28. 38. 21,0 | 14,1  | 11,86 | 7. 23. 20        | 11. 28. 27. 48,6 | 12,1  | 13,43 |
| 7. 7. 30         | 11. 28. 50. 7,9  | 15,8  | 10,11 | 7. 15. 30        | 11. 28. 38. 6,9  | 14,1  | 11,90 | 7. 23. 30        | 11. 28. 27. 36,5 | 12,1  | 13,46 |
| 7. 7. 40         | 11. 28. 49. 52,1 | 15,9  | 10,15 | 7. 15. 40        | 11. 28. 37. 52,8 | 14,1  | 11,93 | 7. 23. 40        | 11. 28. 27. 24,4 | 12,0  | 13,49 |
| 7. 7. 50         | 11. 28. 49. 36,2 | 15,8  | 10,19 | 7. 15. 50        | 11. 28. 37. 38,7 | 14,0  | 11,97 | 7. 23. 50        | 11. 28. 27. 12,4 | 12,0  | 13,52 |
| 7. 8. 0          | 11. 28. 49. 20,4 | 15,8  | 10,23 | 7. 16. 0         | 11. 28. 37. 24,7 | 14,0  | 12,00 | 7. 24. 0         | 11. 28. 27. 0,4  | 11,9  | 13,55 |
| 7. 8. 10         | 11. 28. 49. 4,6  | 15,7  | 10,27 | 7. 16. 10        | 11. 28. 37. 10,7 | 14,0  | 12,04 | 7. 24. 10        | 11. 28. 26. 48,5 | 11,9  | 13,58 |
| 7. 8. 20         | 11. 28. 48. 48,9 | 15,7  | 10,31 | 7. 16. 20        | 11. 28. 36. 56,7 | 13,9  | 12,07 | 7. 24. 20        | 11. 28. 26. 36,6 | 11,9  | 13,61 |
| 7. 8. 30         | 11. 28. 48. 33,2 | 15,6  | 10,35 | 7. 16. 30        | 11. 28. 36. 42,8 | 13,8  | 12,10 | 7. 24. 30        | 11. 28. 26. 24,7 | 11,8  | 13,64 |
| 7. 8. 40         | 11. 28. 48. 17,6 | 15,6  | 10,39 | 7. 16. 40        | 11. 28. 36. 29,0 | 13,8  | 12,14 | 7. 24. 40        | 11. 28. 26. 12,9 | 11,8  | 13,67 |
| 7. 8. 50         | 11. 28. 48. 2,0  | 15,5  | 10,43 | 7. 16. 50        | 11. 28. 36. 15,2 | 13,8  | 12,17 | 7. 24. 50        | 11. 28. 26. 1,1  | 11,7  | 13,70 |
| 7. 9. 0          | 11. 28. 47. 46,5 | 15,6  | 10,46 | 7. 17. 0         | 11. 28. 36. 1,4  | 13,7  | 12,21 | 7. 25. 0         | 11. 28. 25. 49,4 | 11,7  | 13,73 |
| 7. 9. 10         | 11. 28. 47. 30,9 | 15,5  | 10,50 | 7. 17. 10        | 11. 28. 35. 47,7 | 13,7  | 12,24 | 7. 25. 10        | 11. 28. 25. 37,7 | 11,6  | 13,76 |
| 7. 9. 20         | 11. 28. 47. 15,4 | 15,5  | 10,54 | 7. 17. 20        | 11. 28. 35. 34,0 | 13,7  | 12,28 | 7. 25. 20        | 11. 28. 25. 26,1 | 11,6  | 13,79 |
| 7. 9. 30         | 11. 28. 46. 59,9 | 15,5  | 10,58 | 7. 17. 30        | 11. 28. 35. 20,3 | 13,6  | 12,31 | 7. 25. 30        | 11. 28. 25. 14,5 | 11,5  | 13,82 |
| 7. 9. 40         | 11. 28. 46. 44,4 | 15,4  | 10,62 | 7. 17. 40        | 11. 28. 35. 6,7  | 13,6  | 12,34 | 7. 25. 40        | 11. 28. 25. 3,0  | 11,5  | 13,85 |
| 7. 9. 50         | 11. 28. 46. 29,0 | 15,4  | 10,65 | 7. 17. 50        | 11. 28. 34. 53,1 | 13,6  | 12,38 | 7. 25. 50        | 11. 28. 24. 51,5 | 11,4  | 13,88 |
| 7. 10. 0         | 11. 28. 46. 13,6 | 15,3  | 10,69 | 7. 18. 0         | 11. 28. 34. 39,5 | 13,5  | 12,41 | 7. 26. 0         | 11. 28. 24. 40,1 | 11,4  | 13,91 |
| 7. 10. 10        | 11. 28. 45. 58,3 | 15,3  | 10,73 | 7. 18. 10        | 11. 28. 34. 26,0 | 13,4  | 12,44 | 7. 26. 10        | 11. 28. 24. 28,7 | 11,3  | 13,94 |
| 7. 10. 20        | 11. 28. 45. 43,0 | 15,2  | 10,77 | 7. 18. 20        | 11. 28. 34. 12,6 | 13,4  | 12,48 | 7. 26. 20        | 11. 28. 24. 17,4 | 11,3  | 13,97 |
| 7. 10. 30        | 11. 28. 45. 27,8 | 15,3  | 10,81 | 7. 18. 30        | 11. 28. 33. 59,2 | 13,4  | 12,51 | 7. 26. 30        | 11. 28. 24. 6,1  | 11,3  | 14,00 |
| 7. 10. 40        | 11. 28. 45. 12,5 | 15,2  | 10,84 | 7. 18. 40        | 11. 28. 33. 45,8 | 13,3  | 12,54 | 7. 26. 40        | 11. 28. 23. 54,8 | 11,2  | 14,03 |
| 7. 10. 50        | 11. 28. 44. 57,3 | 15,2  | 10,88 | 7. 18. 50        | 11. 28. 33. 32,5 | 13,3  | 12,58 | 7. 26. 50        | 11. 28. 23. 43,6 | 11,1  | 14,06 |
| 7. 11. 0         | 11. 28. 44. 42,1 | 15,1  | 10,92 | 7. 19. 0         | 11. 28. 33. 19,2 | 13,3  | 12,61 | 7. 27. 0         | 11. 28. 23. 32,5 | 11,1  | 14,09 |
| 7. 11. 10        | 11. 28. 44. 27,0 | 15,1  | 10,96 | 7. 19. 10        | 11. 28. 33. 5,9  | 13,2  | 12,64 | 7. 27. 10        | 11. 28. 23. 21,4 | 11,1  | 14,11 |
| 7. 11. 20        | 11. 28. 44. 11,9 | 15,0  | 10,99 | 7. 19. 20        | 11. 28. 32. 52,7 | 13,2  | 12,68 | 7. 27. 20        | 11. 28. 23. 10,3 | 11,0  | 14,14 |
| 7. 11. 30        | 11. 28. 43. 56,9 | 15,0  | 11,03 | 7. 19. 30        | 11. 28. 32. 39,5 | 13,1  | 12,71 | 7. 27. 30        | 11. 28. 22. 59,3 | 11,0  | 14,16 |
| 7. 11. 40        | 11. 28. 43. 41,9 | 15,0  | 11,07 | 7. 19. 40        | 11. 28. 32. 26,4 | 13,1  | 12,74 | 7. 27. 40        | 11. 28. 22. 48,3 | 10,9  | 14,19 |
| 7. 11. 50        | 11. 28. 43. 26,9 | 15,0  | 11,10 | 7. 19. 50        | 11. 28. 32. 13,3 | 13,0  | 12,77 | 7. 27. 50        | 11. 28. 22. 37,4 | 10,9  | 14,22 |
| 7. 12. 0         | 11. 28. 43. 11,9 | 14,9  | 11,14 | 7. 20. 0         | 11. 28. 32. 0,3  | 13,0  | 12,81 | 7. 28. 0         | 11. 28. 22. 26,5 | 10,9  | 14,24 |
| 7. 12. 10        | 11. 28. 42. 57,0 | 14,8  | 11,18 | 7. 20. 10        | 11. 28. 31. 47,3 | 13,0  | 12,84 | 7. 28. 10        | 11. 28. 22. 15,6 | 10,8  | 14,27 |
| 7. 12. 20        | 11. 28. 42. 42,2 | 14,8  | 11,21 | 7. 20. 20        | 11. 28. 31. 34,3 | 12,9  | 12,87 | 7. 28. 20        | 11. 28. 22. 4,8  | 10,7  | 14,30 |
| 7. 12. 30        | 11. 28. 42. 27,4 | 14,8  | 11,25 | 7. 20. 30        | 11. 28. 31. 21,4 | 12,8  | 12,90 | 7. 28. 30        | 11. 28. 21. 54,1 | 10,7  | 14,32 |
| 7. 12. 40        | 11. 28. 42. 12,6 | 14,8  | 11,29 | 7. 20. 40        | 11. 28. 31. 8,6  | 12,8  | 12,93 | 7. 28. 40        | 11. 28. 21. 43,4 | 10,6  | 14,35 |
| 7. 12. 50        | 11. 28. 41. 57,8 | 14,7  | 11,32 | 7. 20. 50        | 11. 28. 30. 55,8 | 12,8  | 12,97 | 7. 28. 50        | 11. 28. 21. 32,8 | 10,6  | 14,38 |
| 7. 13. 0         | 11. 28. 41. 43,1 | 14,7  | 11,36 | 7. 21. 0         | 11. 28. 30. 43,0 | 12,7  | 13,00 | 7. 29. 0         | 11. 28. 21. 22,2 | 10,5  | 14,40 |
| 7. 13. 10        | 11. 28. 41. 28,4 | 14,7  | 11,40 | 7. 21. 10        | 11. 28. 30. 30,3 | 12,7  | 13,03 | 7. 29. 10        | 11. 28. 21. 11,7 | 10,5  | 14,43 |
| 7. 13. 20        | 11. 28. 41. 13,7 | 14,6  | 11,43 | 7. 21. 20        | 11. 28. 30. 17,6 | 12,7  | 13,06 | 7. 29. 20        | 11. 28. 21. 1,2  | 10,4  | 14,46 |
| 7. 13. 30        | 11. 28. 40. 59,1 | 14,6  | 11,47 | 7. 21. 30        | 11. 28. 30. 4,9  | 12,6  | 13,09 | 7. 29. 30        | 11. 28. 20. 50,8 | 10,4  | 14,48 |
| 7. 13. 40        | 11. 28. 40. 44,5 | 14,5  | 11,50 | 7. 21. 40        | 11. 28. 29. 52,3 | 12,6  | 13,12 | 7. 29. 40        | 11. 28. 20. 40,4 | 10,3  | 14,51 |
| 7. 13. 50        | 11. 28. 40. 30,0 | 14,5  | 11,54 | 7. 21. 50        | 11. 28. 29. 39,7 | 12,5  | 13,16 | 7. 29. 50        | 11. 28. 20. 30,1 | 10,4  | 14,53 |
| 7. 14. 0         | 11. 28. 40. 15,5 | 14,5  | 11,58 | 7. 22. 0         | 11. 28. 29. 27,2 | 12,5  | 13,19 | 8. 0. 0          | 11. 28. 20. 19,7 | 10,4  | 14,56 |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean Anomaly. | Equation.        | Diff. | S. V. | Mean Anomaly. | Equation.        | Diff. | S. V. | Mean Anomaly. | Equation.       | Diff. | S. V. |
|---------------|------------------|-------|-------|---------------|------------------|-------|-------|---------------|-----------------|-------|-------|
| S. D. M.      | S. D. M. S.      | -     | +     | S. D. M.      | S. D. M. S.      | -     | +     | S. D. M.      | S. D. M. S.     | -     | +     |
| 8. 0. 0       | 11. 28. 20. 19,7 | 10,3  | 14,56 | 8. 8. 0       | 11. 28. 13. 3,9  | 7,8   | 15,67 | 8. 16. 0      | 11. 28. 7. 49,4 | 5,2   | 16,49 |
| 8. 0. 10      | 11. 28. 20. 9,4  | 10,2  | 14,59 | 8. 8. 10      | 11. 28. 12. 56,1 | 7,8   | 15,69 | 8. 16. 10     | 11. 28. 7. 44,2 | 5,2   | 16,50 |
| 8. 0. 20      | 11. 28. 19. 59,2 | 10,1  | 14,61 | 8. 8. 20      | 11. 28. 12. 48,3 | 7,7   | 15,71 | 8. 16. 20     | 11. 28. 7. 39,0 | 5,1   | 16,52 |
| 8. 0. 30      | 11. 28. 19. 49,1 | 10,1  | 14,64 | 8. 8. 30      | 11. 28. 12. 40,6 | 7,6   | 15,73 | 8. 16. 30     | 11. 28. 7. 33,9 | 5,1   | 16,53 |
| 8. 0. 40      | 11. 28. 19. 39,0 | 10,1  | 14,67 | 8. 8. 40      | 11. 28. 12. 33,0 | 7,6   | 15,75 | 8. 16. 40     | 11. 28. 7. 28,8 | 5,0   | 16,55 |
| 8. 0. 50      | 11. 28. 19. 28,9 | 10,0  | 14,69 | 8. 8. 50      | 11. 28. 12. 25,4 | 7,5   | 15,77 | 8. 16. 50     | 11. 28. 7. 23,8 | 4,9   | 16,56 |
| 8. 1. 0       | 11. 28. 19. 18,9 | 10,0  | 14,72 | 8. 9. 0       | 11. 28. 12. 17,9 | 7,5   | 15,79 | 8. 17. 0      | 11. 28. 7. 18,9 | 4,9   | 16,57 |
| 8. 1. 10      | 11. 28. 19. 8,9  | 9,9   | 14,74 | 8. 9. 10      | 11. 28. 12. 10,4 | 7,5   | 15,81 | 8. 17. 10     | 11. 28. 7. 14,0 | 4,8   | 16,58 |
| 8. 1. 20      | 11. 28. 18. 59,0 | 9,9   | 14,77 | 8. 9. 20      | 11. 28. 12. 2,9  | 7,4   | 15,83 | 8. 17. 20     | 11. 28. 7. 9,2  | 4,8   | 16,60 |
| 8. 1. 30      | 11. 28. 18. 49,1 | 9,8   | 14,79 | 8. 9. 30      | 11. 28. 11. 55,5 | 7,3   | 15,85 | 8. 17. 30     | 11. 28. 7. 4,4  | 4,7   | 16,61 |
| 8. 1. 40      | 11. 28. 18. 39,3 | 9,7   | 14,82 | 8. 9. 40      | 11. 28. 11. 48,2 | 7,3   | 15,87 | 8. 17. 40     | 11. 28. 6. 59,7 | 4,6   | 16,62 |
| 8. 1. 50      | 11. 28. 18. 29,6 | 9,7   | 14,84 | 8. 9. 50      | 11. 28. 11. 40,9 | 7,2   | 15,88 | 8. 17. 50     | 11. 28. 6. 55,1 | 4,6   | 16,64 |
| 8. 2. 0       | 11. 28. 18. 19,9 | 9,7   | 14,87 | 8. 10. 0      | 11. 28. 11. 33,7 | 7,2   | 15,90 | 8. 18. 0      | 11. 28. 6. 50,5 | 4,5   | 16,65 |
| 8. 2. 10      | 11. 28. 18. 10,2 | 9,6   | 14,89 | 8. 10. 10     | 11. 28. 11. 26,5 | 7,1   | 15,92 | 8. 18. 10     | 11. 28. 6. 46,0 | 4,5   | 16,66 |
| 8. 2. 20      | 11. 28. 18. 0,6  | 9,6   | 14,91 | 8. 10. 20     | 11. 28. 11. 19,4 | 7,1   | 15,94 | 8. 18. 20     | 11. 28. 6. 41,5 | 4,4   | 16,67 |
| 8. 2. 30      | 11. 28. 17. 51,0 | 9,5   | 14,94 | 8. 10. 30     | 11. 28. 11. 12,3 | 7,0   | 15,96 | 8. 18. 30     | 11. 28. 6. 37,1 | 4,4   | 16,68 |
| 8. 2. 40      | 11. 28. 17. 41,5 | 9,4   | 14,96 | 8. 10. 40     | 11. 28. 11. 5,3  | 7,0   | 15,99 | 8. 18. 40     | 11. 28. 6. 32,7 | 4,3   | 16,70 |
| 8. 2. 50      | 11. 28. 17. 32,1 | 9,4   | 14,99 | 8. 10. 50     | 11. 28. 10. 58,3 | 6,9   | 16,00 | 8. 18. 50     | 11. 28. 6. 28,4 | 4,3   | 16,71 |
| 8. 3. 0       | 11. 28. 17. 22,7 | 9,4   | 15,01 | 8. 11. 0      | 11. 28. 10. 51,4 | 6,9   | 16,01 | 8. 19. 0      | 11. 28. 6. 24,1 | 4,2   | 16,72 |
| 8. 3. 10      | 11. 28. 17. 13,3 | 9,3   | 15,03 | 8. 11. 10     | 11. 28. 10. 44,5 | 6,8   | 16,03 | 8. 19. 10     | 11. 28. 6. 19,9 | 4,1   | 16,73 |
| 8. 3. 20      | 11. 28. 17. 4,0  | 9,3   | 15,06 | 8. 11. 20     | 11. 28. 10. 37,7 | 6,7   | 16,05 | 8. 19. 20     | 11. 28. 6. 15,8 | 4,1   | 16,74 |
| 8. 3. 30      | 11. 28. 16. 54,7 | 9,2   | 15,08 | 8. 11. 30     | 11. 28. 10. 31,0 | 6,7   | 16,07 | 8. 19. 30     | 11. 28. 6. 11,7 | 4,1   | 16,75 |
| 8. 3. 40      | 11. 28. 16. 45,5 | 9,1   | 15,10 | 8. 11. 40     | 11. 28. 10. 24,3 | 6,6   | 16,08 | 8. 19. 40     | 11. 28. 6. 7,6  | 4,0   | 16,76 |
| 8. 3. 50      | 11. 28. 16. 36,4 | 9,1   | 15,13 | 8. 11. 50     | 11. 28. 10. 17,7 | 6,6   | 16,10 | 8. 19. 50     | 11. 28. 6. 3,6  | 3,9   | 16,77 |
| 8. 4. 0       | 11. 28. 16. 27,3 | 9,1   | 15,15 | 8. 12. 0      | 11. 28. 10. 11,1 | 6,5   | 16,12 | 8. 20. 0      | 11. 28. 5. 59,7 | 3,9   | 16,78 |
| 8. 4. 10      | 11. 28. 16. 18,2 | 9,0   | 15,17 | 8. 12. 10     | 11. 28. 10. 4,6  | 6,5   | 16,13 | 8. 20. 10     | 11. 28. 5. 55,8 | 3,8   | 16,79 |
| 8. 4. 20      | 11. 28. 16. 9,2  | 9,0   | 15,20 | 8. 12. 20     | 11. 28. 9. 58,1  | 6,5   | 16,15 | 8. 20. 20     | 11. 28. 5. 52,0 | 3,8   | 16,81 |
| 8. 4. 30      | 11. 28. 16. 0,2  | 8,9   | 15,22 | 8. 12. 30     | 11. 28. 9. 51,6  | 6,4   | 16,17 | 8. 20. 30     | 11. 28. 5. 48,2 | 3,7   | 16,82 |
| 8. 4. 40      | 11. 28. 15. 51,3 | 8,9   | 15,24 | 8. 12. 40     | 11. 28. 9. 45,2  | 6,3   | 16,18 | 8. 20. 40     | 11. 28. 5. 44,5 | 3,6   | 16,83 |
| 8. 4. 50      | 11. 28. 15. 42,4 | 8,8   | 15,27 | 8. 12. 50     | 11. 28. 9. 38,9  | 6,2   | 16,20 | 8. 20. 50     | 11. 28. 5. 40,9 | 3,5   | 16,84 |
| 8. 5. 0       | 11. 28. 15. 33,6 | 8,7   | 15,29 | 8. 13. 0      | 11. 28. 9. 32,7  | 6,2   | 16,22 | 8. 21. 0      | 11. 28. 5. 37,4 | 3,5   | 16,85 |
| 8. 5. 10      | 11. 28. 15. 24,9 | 8,7   | 15,31 | 8. 13. 10     | 11. 28. 9. 26,5  | 6,2   | 16,23 | 8. 21. 10     | 11. 28. 5. 33,9 | 3,5   | 16,86 |
| 8. 5. 20      | 11. 28. 15. 16,2 | 8,7   | 15,33 | 8. 13. 20     | 11. 28. 9. 20,3  | 6,1   | 16,25 | 8. 21. 20     | 11. 28. 5. 30,4 | 3,4   | 16,87 |
| 8. 5. 30      | 11. 28. 15. 7,5  | 8,6   | 15,35 | 8. 13. 30     | 11. 28. 9. 14,2  | 6,0   | 16,27 | 8. 21. 30     | 11. 28. 5. 27,0 | 3,3   | 16,87 |
| 8. 5. 40      | 11. 28. 14. 58,9 | 8,5   | 15,37 | 8. 13. 40     | 11. 28. 9. 8,2   | 6,0   | 16,28 | 8. 21. 40     | 11. 28. 5. 23,7 | 3,3   | 16,88 |
| 8. 5. 50      | 11. 28. 14. 50,4 | 8,5   | 15,39 | 8. 13. 50     | 11. 28. 9. 2,2   | 6,0   | 16,30 | 8. 21. 50     | 11. 28. 5. 20,4 | 3,3   | 16,89 |
| 8. 6. 0       | 11. 28. 14. 41,9 | 8,4   | 15,42 | 8. 14. 0      | 11. 28. 8. 56,2  | 5,8   | 16,31 | 8. 22. 0      | 11. 28. 5. 17,1 | 3,2   | 16,90 |
| 8. 6. 10      | 11. 28. 14. 33,5 | 8,4   | 15,44 | 8. 14. 10     | 11. 28. 8. 50,4  | 5,8   | 16,33 | 8. 22. 10     | 11. 28. 5. 13,9 | 3,2   | 16,91 |
| 8. 6. 20      | 11. 28. 14. 25,1 | 8,3   | 15,46 | 8. 14. 20     | 11. 28. 8. 44,6  | 5,8   | 16,34 | 8. 22. 20     | 11. 28. 5. 10,8 | 3,1   | 16,92 |
| 8. 6. 30      | 11. 28. 14. 16,8 | 8,3   | 15,48 | 8. 14. 30     | 11. 28. 8. 38,8  | 5,7   | 16,36 | 8. 22. 30     | 11. 28. 5. 7,7  | 3,0   | 16,93 |
| 8. 6. 40      | 11. 28. 14. 8,5  | 8,3   | 15,51 | 8. 14. 40     | 11. 28. 8. 33,1  | 5,7   | 16,37 | 8. 22. 40     | 11. 28. 5. 4,7  | 2,9   | 16,94 |
| 8. 6. 50      | 11. 28. 14. 0,2  | 8,2   | 15,53 | 8. 14. 50     | 11. 28. 8. 27,4  | 5,6   | 16,39 | 8. 22. 50     | 11. 28. 5. 1,8  | 2,9   | 16,94 |
| 8. 7. 0       | 11. 28. 13. 52,0 | 8,1   | 15,55 | 8. 15. 0      | 11. 28. 8. 21,8  | 5,5   | 16,40 | 8. 23. 0      | 11. 28. 4. 58,9 | 2,8   | 16,95 |
| 8. 7. 10      | 11. 28. 13. 43,9 | 8,1   | 15,57 | 8. 15. 10     | 11. 28. 8. 16,3  | 5,5   | 16,42 | 8. 23. 10     | 11. 28. 4. 56,1 | 2,8   | 16,96 |
| 8. 7. 20      | 11. 28. 13. 35,8 | 8,0   | 15,59 | 8. 15. 20     | 11. 28. 8. 10,8  | 5,5   | 16,43 | 8. 23. 20     | 11. 28. 4. 53,3 | 2,7   | 16,97 |
| 8. 7. 30      | 11. 28. 13. 27,8 | 8,0   | 15,61 | 8. 15. 30     | 11. 28. 8. 5,3   | 5,4   | 16,45 | 8. 23. 30     | 11. 28. 4. 50,6 | 2,6   | 16,98 |
| 8. 7. 40      | 11. 28. 13. 19,8 | 8,0   | 15,63 | 8. 15. 40     | 11. 28. 7. 59,9  | 5,3   | 16,46 | 8. 23. 40     | 11. 28. 4. 48,0 | 2,6   | 16,98 |
| 8. 7. 50      | 11. 28. 13. 11,8 | 8,0   | 15,65 | 8. 15. 50     | 11. 28. 7. 54,6  | 5,3   | 16,47 | 8. 23. 50     | 11. 28. 4. 45,4 | 2,6   | 16,99 |
| 8. 8. 0       | 11. 28. 13. 3,9  | 7,9   | 15,67 | 8. 16. 0      | 11. 28. 7. 49,4  | 5,2   | 16,49 | 8. 24. 0      | 11. 28. 4. 42,8 | 2,6   | 17,00 |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.       | Diff. | S. V. | Mean<br>Anomaly. | Equation.       | Diff. | S. V. | Mean<br>Anomaly. | Equation.       | Diff. | S. V. |
|------------------|-----------------|-------|-------|------------------|-----------------|-------|-------|------------------|-----------------|-------|-------|
| S. D. M.         | S. D. M. S.     | S.    | S.    | S. D. M.         | S. D. M. S.     | S.    | S.    | S. D. M.         | S. D. M. S.     | S.    | S.    |
| 8. 24. 0         | 11. 28. 4. 42,8 | 2,5   | 17,00 | 9. 2. 0          | 11. 28. 3. 48,8 | 0,3   | 17,18 | 9. 10. 0         | 11. 28. 5. 9,9  | 3,1   | 17,03 |
| 8. 24. 10        | 11. 28. 4. 40,3 | 2,5   | 17,00 | 9. 2. 10         | 11. 28. 3. 49,1 | 0,4   | 17,18 | 9. 10. 10        | 11. 28. 5. 13,0 | 3,2   | 17,02 |
| 8. 24. 20        | 11. 28. 4. 37,8 | 2,4   | 17,01 | 9. 2. 20         | 11. 28. 3. 49,5 | 0,4   | 17,18 | 9. 10. 20        | 11. 28. 5. 16,2 | 3,3   | 17,02 |
| 8. 24. 30        | 11. 28. 4. 35,4 | 2,3   | 17,02 | 9. 2. 30         | 11. 28. 3. 49,9 | 0,5   | 17,18 | 9. 10. 30        | 11. 28. 5. 19,5 | 3,3   | 17,01 |
| 8. 24. 40        | 11. 28. 4. 33,1 | 2,3   | 17,03 | 9. 2. 40         | 11. 28. 3. 50,4 | 0,6   | 17,18 | 9. 10. 40        | 11. 28. 5. 22,8 | 3,3   | 17,00 |
| 8. 24. 50        | 11. 28. 4. 30,8 | 2,2   | 17,03 | 9. 2. 50         | 11. 28. 3. 51,0 | 0,6   | 17,18 | 9. 10. 50        | 11. 28. 5. 26,1 | 3,4   | 16,99 |
| 8. 25. 0         | 11. 28. 4. 28,6 | 2,1   | 17,04 | 9. 3. 0          | 11. 28. 3. 51,6 | 0,7   | 17,18 | 9. 11. 0         | 11. 28. 5. 29,5 | 3,5   | 16,99 |
| 8. 25. 10        | 11. 28. 4. 26,5 | 2,1   | 17,05 | 9. 3. 10         | 11. 28. 3. 52,3 | 0,7   | 17,18 | 9. 11. 10        | 11. 28. 5. 33,0 | 3,6   | 16,98 |
| 8. 25. 20        | 11. 28. 4. 24,4 | 2,0   | 17,05 | 9. 3. 20         | 11. 28. 3. 53,0 | 0,8   | 17,18 | 9. 11. 20        | 11. 28. 5. 36,6 | 3,6   | 16,97 |
| 8. 25. 30        | 11. 28. 4. 22,4 | 1,9   | 17,06 | 9. 3. 30         | 11. 28. 3. 53,8 | 0,8   | 17,18 | 9. 11. 30        | 11. 28. 5. 40,2 | 3,6   | 16,96 |
| 8. 25. 40        | 11. 28. 4. 20,5 | 1,9   | 17,07 | 9. 3. 40         | 11. 28. 3. 54,6 | 0,9   | 17,18 | 9. 11. 40        | 11. 28. 5. 43,8 | 3,7   | 16,96 |
| 8. 25. 50        | 11. 28. 4. 18,6 | 1,9   | 17,07 | 9. 3. 50         | 11. 28. 3. 55,5 | 1,0   | 17,18 | 9. 11. 50        | 11. 28. 5. 47,5 | 3,8   | 16,95 |
| 8. 26. 0         | 11. 28. 4. 16,7 | 1,8   | 17,08 | 9. 4. 0          | 11. 28. 3. 56,5 | 1,0   | 17,18 | 9. 12. 0         | 11. 28. 5. 51,3 | 3,8   | 16,94 |
| 8. 26. 10        | 11. 28. 4. 14,9 | 1,7   | 17,08 | 9. 4. 10         | 11. 28. 3. 57,5 | 1,0   | 17,17 | 9. 12. 10        | 11. 28. 5. 55,1 | 3,9   | 16,93 |
| 8. 26. 20        | 11. 28. 4. 13,2 | 1,7   | 17,09 | 9. 4. 20         | 11. 28. 3. 58,5 | 1,1   | 17,17 | 9. 12. 20        | 11. 28. 5. 59,0 | 4,0   | 16,92 |
| 8. 26. 30        | 11. 28. 4. 11,5 | 1,6   | 17,09 | 9. 4. 30         | 11. 28. 3. 59,6 | 1,2   | 17,17 | 9. 12. 30        | 11. 28. 6. 3,0  | 4,0   | 16,91 |
| 8. 26. 40        | 11. 28. 4. 9,9  | 1,6   | 17,10 | 9. 4. 40         | 11. 28. 4. 0,8  | 1,3   | 17,17 | 9. 12. 40        | 11. 28. 6. 7,0  | 4,0   | 16,90 |
| 8. 26. 50        | 11. 28. 4. 8,3  | 1,5   | 17,10 | 9. 4. 50         | 11. 28. 4. 2,1  | 1,3   | 17,17 | 9. 12. 50        | 11. 28. 6. 11,0 | 4,1   | 16,90 |
| 8. 27. 0         | 11. 28. 4. 6,8  | 1,4   | 17,11 | 9. 5. 0          | 11. 28. 4. 3,4  | 1,4   | 17,16 | 9. 13. 0         | 11. 28. 6. 15,1 | 4,2   | 16,89 |
| 8. 27. 10        | 11. 28. 4. 5,4  | 1,4   | 17,11 | 9. 5. 10         | 11. 28. 4. 4,8  | 1,4   | 17,16 | 9. 13. 10        | 11. 28. 6. 19,3 | 4,3   | 16,88 |
| 8. 27. 20        | 11. 28. 4. 4,0  | 1,3   | 17,11 | 9. 5. 20         | 11. 28. 4. 6,2  | 1,5   | 17,16 | 9. 13. 20        | 11. 28. 6. 23,6 | 4,3   | 16,87 |
| 8. 27. 30        | 11. 28. 4. 2,7  | 1,3   | 17,12 | 9. 5. 30         | 11. 28. 4. 7,7  | 1,6   | 17,16 | 9. 13. 30        | 11. 28. 6. 27,8 | 4,4   | 16,86 |
| 8. 27. 40        | 11. 28. 4. 1,4  | 1,2   | 17,12 | 9. 5. 40         | 11. 28. 4. 9,3  | 1,6   | 17,16 | 9. 13. 40        | 11. 28. 6. 32,1 | 4,4   | 16,85 |
| 8. 27. 50        | 11. 28. 4. 0,2  | 1,2   | 17,13 | 9. 5. 50         | 11. 28. 4. 10,9 | 1,7   | 17,15 | 9. 13. 50        | 11. 28. 6. 36,5 | 4,5   | 16,84 |
| 8. 28. 0         | 11. 28. 3. 59,0 | 1,1   | 17,13 | 9. 6. 0          | 11. 28. 4. 12,6 | 1,7   | 17,15 | 9. 14. 0         | 11. 28. 6. 41,0 | 4,5   | 16,83 |
| 8. 28. 10        | 11. 28. 3. 57,9 | 1,0   | 17,13 | 9. 6. 10         | 11. 28. 4. 14,3 | 1,7   | 17,15 | 9. 14. 10        | 11. 28. 6. 45,5 | 4,6   | 16,82 |
| 8. 28. 20        | 11. 28. 3. 56,9 | 1,0   | 17,14 | 9. 6. 20         | 11. 28. 4. 16,0 | 1,8   | 17,14 | 9. 14. 20        | 11. 28. 6. 50,1 | 4,6   | 16,81 |
| 8. 28. 30        | 11. 28. 3. 55,9 | 0,9   | 17,14 | 9. 6. 30         | 11. 28. 4. 17,8 | 1,9   | 17,14 | 9. 14. 30        | 11. 28. 6. 54,7 | 4,7   | 16,80 |
| 8. 28. 40        | 11. 28. 3. 55,0 | 0,9   | 17,14 | 9. 6. 40         | 11. 28. 4. 19,7 | 2,0   | 17,13 | 9. 14. 40        | 11. 28. 6. 59,4 | 4,8   | 16,79 |
| 8. 28. 50        | 11. 28. 3. 54,1 | 0,8   | 17,15 | 9. 6. 50         | 11. 28. 4. 21,7 | 2,0   | 17,13 | 9. 14. 50        | 11. 28. 7. 4,2  | 4,8   | 16,78 |
| 8. 29. 0         | 11. 28. 3. 53,3 | 0,7   | 17,15 | 9. 7. 0          | 11. 28. 4. 23,7 | 2,1   | 17,13 | 9. 15. 0         | 11. 28. 7. 9,0  | 4,9   | 16,76 |
| 8. 29. 10        | 11. 28. 3. 52,6 | 0,7   | 17,15 | 9. 7. 10         | 11. 28. 4. 25,8 | 2,1   | 17,12 | 9. 15. 10        | 11. 28. 7. 13,9 | 4,9   | 16,75 |
| 8. 29. 20        | 11. 28. 3. 51,9 | 0,6   | 17,16 | 9. 7. 20         | 11. 28. 4. 27,9 | 2,2   | 17,12 | 9. 15. 20        | 11. 28. 7. 18,8 | 5,0   | 16,74 |
| 8. 29. 30        | 11. 28. 3. 51,3 | 0,6   | 17,16 | 9. 7. 30         | 11. 28. 4. 30,1 | 2,2   | 17,11 | 9. 15. 30        | 11. 28. 7. 23,8 | 5,1   | 16,73 |
| 8. 29. 40        | 11. 28. 3. 50,7 | 0,5   | 17,16 | 9. 7. 40         | 11. 28. 4. 32,3 | 2,3   | 17,11 | 9. 15. 40        | 11. 28. 7. 28,9 | 5,1   | 16,72 |
| 8. 29. 50        | 11. 28. 3. 50,2 | 0,5   | 17,17 | 9. 7. 50         | 11. 28. 4. 34,6 | 2,4   | 17,10 | 9. 15. 50        | 11. 28. 7. 34,0 | 5,2   | 16,71 |
| 9. 0. 0          | 11. 28. 3. 49,7 | 0,4   | 17,17 | 9. 8. 0          | 11. 28. 4. 37,0 | 2,4   | 17,10 | 9. 16. 0         | 11. 28. 7. 39,2 | 5,2   | 16,70 |
| 9. 0. 10         | 11. 28. 3. 49,3 | 0,3   | 17,17 | 9. 8. 10         | 11. 28. 4. 39,4 | 2,5   | 17,09 | 9. 16. 10        | 11. 28. 7. 44,4 | 5,3   | 16,68 |
| 9. 0. 20         | 11. 28. 3. 49,0 | 0,3   | 17,17 | 9. 8. 20         | 11. 28. 4. 41,9 | 2,5   | 17,09 | 9. 16. 20        | 11. 28. 7. 49,7 | 5,3   | 16,67 |
| 9. 0. 30         | 11. 28. 3. 48,7 | 0,2   | 17,17 | 9. 8. 30         | 11. 28. 4. 44,4 | 2,6   | 17,08 | 9. 16. 30        | 11. 28. 7. 55,0 | 5,4   | 16,66 |
| 9. 0. 40         | 11. 28. 3. 48,5 | 0,1   | 17,18 | 9. 8. 40         | 11. 28. 4. 47,0 | 2,7   | 17,08 | 9. 16. 40        | 11. 28. 8. 0,4  | 5,4   | 16,65 |
| 9. 0. 50         | 11. 28. 3. 48,4 | 0,1   | 17,18 | 9. 8. 50         | 11. 28. 4. 49,7 | 2,7   | 17,07 | 9. 16. 50        | 11. 28. 8. 5,8  | 5,5   | 16,63 |
| 9. 1. 0          | 11. 28. 3. 48,3 | 0,0   | 17,18 | 9. 9. 0          | 11. 28. 4. 52,4 | 2,8   | 17,07 | 9. 17. 0         | 11. 28. 8. 11,3 | 5,6   | 16,62 |
| 9. 1. 10         | 11. 28. 3. 48,2 | 0,0   | 17,18 | 9. 9. 10         | 11. 28. 4. 55,2 | 2,8   | 17,06 | 9. 17. 10        | 11. 28. 8. 16,9 | 5,6   | 16,61 |
| 9. 1. 20         | 11. 28. 3. 48,2 | 0,0   | 17,18 | 9. 9. 20         | 11. 28. 4. 58,0 | 2,9   | 17,06 | 9. 17. 20        | 11. 28. 8. 22,5 | 5,7   | 16,59 |
| 9. 1. 30         | 11. 28. 3. 48,2 | 0,1   | 17,18 | 9. 9. 30         | 11. 28. 5. 0,9  | 2,9   | 17,05 | 9. 17. 30        | 11. 28. 8. 28,2 | 5,7   | 16,58 |
| 9. 1. 40         | 11. 28. 3. 48,3 | 0,2   | 17,18 | 9. 9. 40         | 11. 28. 5. 3,8  | 3,0   | 17,04 | 9. 17. 40        | 11. 28. 8. 33,9 | 5,8   | 16,57 |
| 9. 1. 50         | 11. 28. 3. 48,5 | 0,3   | 17,18 | 9. 9. 50         | 11. 28. 5. 6,8  | 3,1   | 17,04 | 9. 17. 50        | 11. 28. 8. 39,7 | 5,8   | 16,55 |
| 9. 2. 0          | 11. 28. 3. 48,8 |       | 17,18 | 9. 10. 0         | 11. 28. 5. 9,9  |       | 17,03 | 9. 18. 0         | 11. 28. 8. 45,5 |       | 16,54 |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ | Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ | Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ |
|------------------|------------------|------------|------------|------------------|------------------|------------|------------|------------------|------------------|------------|------------|
| S. D. M.         | S. D. M. S.      | S.         | S.         | S. D. M.         | S. D. M. S.      | S.         | S.         | S. D. M.         | S. D. M. S.      | S.         | S.         |
| 9. 18. 0         | 11. 28. 8. 45,5  | 5,9        | 16,54      | 9. 26. 0         | 11. 28. 14. 32,4 | 8,6        | 15,72      | 10. 4. 0         | 11. 28. 22. 25,1 | 11,1       | 14,57      |
| 9. 18. 10        | 11. 28. 8. 51,4  | 6,0        | 16,53      | 9. 26. 10        | 11. 28. 14. 41,0 | 8,7        | 15,70      | 10. 4. 10        | 11. 28. 22. 36,2 | 11,2       | 14,55      |
| 9. 18. 20        | 11. 28. 8. 57,4  | 6,0        | 16,51      | 9. 26. 20        | 11. 28. 14. 49,7 | 8,7        | 15,68      | 10. 4. 20        | 11. 28. 22. 47,4 | 11,2       | 14,52      |
| 9. 18. 30        | 11. 28. 9. 3,4   | 6,1        | 16,50      | 9. 26. 30        | 11. 28. 14. 58,4 | 8,8        | 15,65      | 10. 4. 30        | 11. 28. 22. 58,6 | 11,3       | 14,49      |
| 9. 18. 40        | 11. 28. 9. 9,5   | 6,2        | 16,48      | 9. 26. 40        | 11. 28. 15. 7,2  | 8,8        | 15,63      | 10. 4. 40        | 11. 28. 23. 9,9  | 11,3       | 14,46      |
| 9. 18. 50        | 11. 28. 9. 15,7  | 6,1        | 16,47      | 9. 26. 50        | 11. 28. 15. 16,0 | 8,9        | 15,61      | 10. 4. 50        | 11. 28. 23. 21,2 | 11,4       | 14,44      |
| 9. 19. 0         | 11. 28. 9. 21,8  | 6,2        | 16,46      | 9. 27. 0         | 11. 28. 15. 24,9 | 8,9        | 15,59      | 10. 5. 0         | 11. 28. 23. 32,6 | 11,4       | 14,41      |
| 9. 19. 10        | 11. 28. 9. 28,0  | 6,3        | 16,44      | 9. 27. 10        | 11. 28. 15. 33,8 | 9,0        | 15,57      | 10. 5. 10        | 11. 28. 23. 44,0 | 11,5       | 14,38      |
| 9. 19. 20        | 11. 28. 9. 34,3  | 6,4        | 16,43      | 9. 27. 20        | 11. 28. 15. 42,8 | 9,0        | 15,55      | 10. 5. 20        | 11. 28. 23. 55,5 | 11,5       | 14,35      |
| 9. 19. 30        | 11. 28. 9. 40,7  | 6,4        | 16,41      | 9. 27. 30        | 11. 28. 15. 51,8 | 9,1        | 15,53      | 10. 5. 30        | 11. 28. 24. 7,0  | 11,6       | 14,32      |
| 9. 19. 40        | 11. 28. 9. 47,1  | 6,5        | 16,40      | 9. 27. 40        | 11. 28. 16. 0,9  | 9,1        | 15,51      | 10. 5. 40        | 11. 28. 24. 18,6 | 11,6       | 14,30      |
| 9. 19. 50        | 11. 28. 9. 53,6  | 6,5        | 16,38      | 9. 27. 50        | 11. 28. 16. 10,0 | 9,2        | 15,48      | 10. 5. 50        | 11. 28. 24. 30,2 | 11,7       | 14,27      |
| 9. 20. 0         | 11. 28. 10. 0,1  | 6,6        | 16,37      | 9. 28. 0         | 11. 28. 16. 19,2 | 9,2        | 15,46      | 10. 6. 0         | 11. 28. 24. 41,9 | 11,7       | 14,24      |
| 9. 20. 10        | 11. 28. 10. 6,7  | 6,7        | 16,35      | 9. 28. 10        | 11. 28. 16. 28,4 | 9,3        | 15,44      | 10. 6. 10        | 11. 28. 24. 53,6 | 11,8       | 14,21      |
| 9. 20. 20        | 11. 28. 10. 13,4 | 6,6        | 16,33      | 9. 28. 20        | 11. 28. 16. 37,7 | 9,3        | 15,42      | 10. 6. 20        | 11. 28. 25. 5,4  | 11,8       | 14,18      |
| 9. 20. 30        | 11. 28. 10. 20,0 | 6,8        | 16,32      | 9. 28. 30        | 11. 28. 16. 47,0 | 9,4        | 15,39      | 10. 6. 30        | 11. 28. 25. 17,2 | 11,9       | 14,15      |
| 9. 20. 40        | 11. 28. 10. 26,8 | 6,8        | 16,30      | 9. 28. 40        | 11. 28. 16. 56,4 | 9,5        | 15,37      | 10. 6. 40        | 11. 28. 25. 29,1 | 11,9       | 14,12      |
| 9. 20. 50        | 11. 28. 10. 33,6 | 6,9        | 16,29      | 9. 28. 50        | 11. 28. 17. 5,9  | 9,5        | 15,35      | 10. 6. 50        | 11. 28. 25. 41,0 | 12,0       | 14,09      |
| 9. 21. 0         | 11. 28. 10. 40,5 | 6,9        | 16,27      | 9. 29. 0         | 11. 28. 17. 15,4 | 9,6        | 15,33      | 10. 7. 0         | 11. 28. 25. 53,0 | 12,0       | 14,07      |
| 9. 21. 10        | 11. 28. 10. 47,4 | 7,0        | 16,26      | 9. 29. 10        | 11. 28. 17. 25,0 | 9,6        | 15,30      | 10. 7. 10        | 11. 28. 26. 5,0  | 12,1       | 14,04      |
| 9. 21. 20        | 11. 28. 10. 54,4 | 7,0        | 16,24      | 9. 29. 20        | 11. 28. 17. 34,6 | 9,7        | 15,28      | 10. 7. 20        | 11. 28. 26. 17,1 | 12,2       | 14,01      |
| 9. 21. 30        | 11. 28. 11. 1,4  | 7,1        | 16,23      | 9. 29. 30        | 11. 28. 17. 44,3 | 9,7        | 15,26      | 10. 7. 30        | 11. 28. 26. 29,3 | 12,2       | 13,98      |
| 9. 21. 40        | 11. 28. 11. 8,5  | 7,2        | 16,21      | 9. 29. 40        | 11. 28. 17. 54,0 | 9,8        | 15,23      | 10. 7. 40        | 11. 28. 26. 41,4 | 12,3       | 13,95      |
| 9. 21. 50        | 11. 28. 11. 15,7 | 7,2        | 16,19      | 9. 29. 50        | 11. 28. 18. 3,8  | 9,8        | 15,21      | 10. 7. 50        | 11. 28. 26. 53,6 | 12,3       | 13,92      |
| 9. 22. 0         | 11. 28. 11. 22,9 | 7,3        | 16,17      | 10. 0. 0         | 11. 28. 18. 13,6 | 9,9        | 15,19      | 10. 8. 0         | 11. 28. 27. 5,9  | 12,4       | 13,89      |
| 9. 22. 10        | 11. 28. 11. 30,2 | 7,3        | 16,15      | 10. 0. 10        | 11. 28. 18. 23,5 | 9,9        | 15,16      | 10. 8. 10        | 11. 28. 27. 18,2 | 12,4       | 13,86      |
| 9. 22. 20        | 11. 28. 11. 37,5 | 7,4        | 16,14      | 10. 0. 20        | 11. 28. 18. 33,4 | 10,0       | 15,14      | 10. 8. 20        | 11. 28. 27. 30,6 | 12,5       | 13,83      |
| 9. 22. 30        | 11. 28. 11. 44,9 | 7,4        | 16,12      | 10. 0. 30        | 11. 28. 18. 43,4 | 10,0       | 15,11      | 10. 8. 30        | 11. 28. 27. 43,0 | 12,5       | 13,80      |
| 9. 22. 40        | 11. 28. 11. 52,3 | 7,5        | 16,10      | 10. 0. 40        | 11. 28. 18. 53,4 | 10,1       | 15,09      | 10. 8. 40        | 11. 28. 27. 55,5 | 12,6       | 13,77      |
| 9. 22. 50        | 11. 28. 11. 59,8 | 7,5        | 16,08      | 10. 0. 50        | 11. 28. 19. 3,5  | 10,1       | 15,06      | 10. 8. 50        | 11. 28. 28. 8,0  | 12,6       | 13,73      |
| 9. 23. 0         | 11. 28. 12. 7,3  | 7,6        | 16,07      | 10. 1. 0         | 11. 28. 19. 13,6 | 10,2       | 15,04      | 10. 9. 0         | 11. 28. 28. 20,6 | 12,7       | 13,70      |
| 9. 23. 10        | 11. 28. 12. 14,9 | 7,7        | 16,05      | 10. 1. 10        | 11. 28. 19. 23,8 | 10,3       | 15,01      | 10. 9. 10        | 11. 28. 28. 33,2 | 12,7       | 13,67      |
| 9. 23. 20        | 11. 28. 12. 22,6 | 7,7        | 16,03      | 10. 1. 20        | 11. 28. 19. 34,1 | 10,3       | 14,99      | 10. 9. 20        | 11. 28. 28. 45,8 | 12,8       | 13,64      |
| 9. 23. 30        | 11. 28. 12. 30,3 | 7,7        | 16,01      | 10. 1. 30        | 11. 28. 19. 44,4 | 10,4       | 14,96      | 10. 9. 30        | 11. 28. 28. 58,5 | 12,8       | 13,61      |
| 9. 23. 40        | 11. 28. 12. 38,0 | 7,8        | 15,99      | 10. 1. 40        | 11. 28. 19. 54,7 | 10,5       | 14,94      | 10. 9. 40        | 11. 28. 29. 11,2 | 12,9       | 13,58      |
| 9. 23. 50        | 11. 28. 12. 45,8 | 7,9        | 15,97      | 10. 1. 50        | 11. 28. 20. 5,1  | 10,5       | 14,91      | 10. 9. 50        | 11. 28. 29. 24,0 | 12,9       | 13,55      |
| 9. 24. 0         | 11. 28. 12. 53,7 | 7,9        | 15,96      | 10. 2. 0         | 11. 28. 20. 15,6 | 10,5       | 14,89      | 10. 10. 0        | 11. 28. 29. 36,9 | 13,0       | 13,51      |
| 9. 24. 10        | 11. 28. 13. 1,6  | 8,0        | 15,94      | 10. 2. 10        | 11. 28. 20. 26,1 | 10,6       | 14,87      | 10. 10. 10       | 11. 28. 29. 49,8 | 13,0       | 13,48      |
| 9. 24. 20        | 11. 28. 13. 9,6  | 8,1        | 15,92      | 10. 2. 20        | 11. 28. 20. 36,7 | 10,6       | 14,84      | 10. 10. 20       | 11. 28. 30. 2,7  | 13,1       | 13,45      |
| 9. 24. 30        | 11. 28. 13. 17,7 | 8,1        | 15,90      | 10. 2. 30        | 11. 28. 20. 47,3 | 10,7       | 14,82      | 10. 10. 30       | 11. 28. 30. 15,7 | 13,1       | 13,42      |
| 9. 24. 40        | 11. 28. 13. 25,8 | 8,2        | 15,88      | 10. 2. 40        | 11. 28. 20. 57,9 | 10,7       | 14,79      | 10. 10. 40       | 11. 28. 30. 28,7 | 13,2       | 13,39      |
| 9. 24. 50        | 11. 28. 13. 33,9 | 8,2        | 15,86      | 10. 2. 50        | 11. 28. 21. 8,6  | 10,8       | 14,77      | 10. 10. 50       | 11. 28. 30. 41,8 | 13,2       | 13,35      |
| 9. 25. 0         | 11. 28. 13. 42,1 | 8,3        | 15,84      | 10. 3. 0         | 11. 28. 21. 19,4 | 10,8       | 14,74      | 10. 11. 0        | 11. 28. 30. 54,9 | 13,3       | 13,32      |
| 9. 25. 10        | 11. 28. 13. 50,4 | 8,3        | 15,82      | 10. 3. 10        | 11. 28. 21. 30,2 | 10,9       | 14,72      | 10. 11. 10       | 11. 28. 31. 8,1  | 13,3       | 13,29      |
| 9. 25. 20        | 11. 28. 13. 58,7 | 8,3        | 15,80      | 10. 3. 20        | 11. 28. 21. 41,1 | 10,9       | 14,69      | 10. 11. 20       | 11. 28. 31. 21,3 | 13,4       | 13,26      |
| 9. 25. 30        | 11. 28. 14. 7,0  | 8,4        | 15,78      | 10. 3. 30        | 11. 28. 21. 52,0 | 11,0       | 14,66      | 10. 11. 30       | 11. 28. 31. 34,6 | 13,4       | 13,23      |
| 9. 25. 40        | 11. 28. 14. 15,4 | 8,5        | 15,76      | 10. 3. 40        | 11. 28. 22. 3,0  | 11,0       | 14,63      | 10. 11. 40       | 11. 28. 31. 47,9 | 13,4       | 13,19      |
| 9. 25. 50        | 11. 28. 14. 23,9 | 8,5        | 15,74      | 10. 3. 50        | 11. 28. 22. 14,0 | 11,1       | 14,60      | 10. 11. 50       | 11. 28. 32. 1,3  | 13,4       | 13,16      |
| 9. 26. 0         | 11. 28. 14. 32,4 | 8,5        | 15,72      | 10. 4. 0         | 11. 28. 22. 25,1 | 11,1       | 14,57      | 10. 12. 0        | 11. 28. 32. 14,7 | 13,4       | 13,13      |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.        | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. | Mean<br>Anomaly. | Equation.        | Diff. | S. V. |
|------------------|------------------|-------|-------|------------------|------------------|-------|-------|------------------|------------------|-------|-------|
| S. D. M.         | S. D. M. S.      | +     | +     | S. D. M.         | S. D. M. S.      | +     | +     | S. D. M.         | S. D. M. S.      | +     | +     |
| 10. 12. 0        | 11. 28. 32. 14,7 | 13,5  | 13,13 | 10. 20. 0        | 11. 28. 43. 50,2 | 15,5  | 11,40 | 10. 28. 0        | 11. 28. 56. 58,1 | 17,3  | 9,43  |
| 10. 12. 10       | 11. 28. 32. 28,2 | 13,5  | 13,09 | 10. 20. 10       | 11. 28. 44. 5,7  | 15,6  | 11,36 | 10. 28. 10       | 11. 28. 57. 15,4 | 17,3  | 9,39  |
| 10. 12. 20       | 11. 28. 32. 41,7 | 13,5  | 13,06 | 10. 20. 20       | 11. 28. 44. 21,3 | 15,6  | 11,32 | 10. 28. 20       | 11. 28. 57. 32,7 | 17,4  | 9,35  |
| 10. 12. 30       | 11. 28. 32. 55,2 | 13,6  | 13,03 | 10. 20. 30       | 11. 28. 44. 36,9 | 15,6  | 11,28 | 10. 28. 30       | 11. 28. 57. 50,1 | 17,4  | 9,30  |
| 10. 12. 40       | 11. 28. 33. 8,8  | 13,6  | 12,99 | 10. 20. 40       | 11. 28. 44. 52,5 | 15,7  | 11,25 | 10. 28. 40       | 11. 28. 58. 7,5  | 17,4  | 9,26  |
| 10. 12. 50       | 11. 28. 33. 22,4 | 13,7  | 12,96 | 10. 20. 50       | 11. 28. 45. 8,2  | 15,7  | 11,21 | 10. 28. 50       | 11. 28. 58. 24,9 | 17,4  | 9,21  |
| 10. 13. 0        | 11. 28. 33. 36,1 | 13,7  | 12,93 | 10. 21. 0        | 11. 28. 45. 23,9 | 15,8  | 11,17 | 10. 29. 0        | 11. 28. 58. 42,3 | 17,5  | 9,17  |
| 10. 13. 10       | 11. 28. 33. 49,8 | 13,8  | 12,89 | 10. 21. 10       | 11. 28. 45. 39,7 | 15,8  | 11,13 | 10. 29. 10       | 11. 28. 58. 59,8 | 17,5  | 9,13  |
| 10. 13. 20       | 11. 28. 34. 3,6  | 13,8  | 12,86 | 10. 21. 20       | 11. 28. 45. 55,5 | 15,8  | 11,09 | 10. 29. 20       | 11. 28. 59. 17,3 | 17,5  | 9,08  |
| 10. 13. 30       | 11. 28. 34. 17,4 | 13,9  | 12,82 | 10. 21. 30       | 11. 28. 46. 11,3 | 15,9  | 11,05 | 10. 29. 30       | 11. 28. 59. 34,8 | 17,6  | 9,04  |
| 10. 13. 40       | 11. 28. 34. 31,3 | 13,9  | 12,79 | 10. 21. 40       | 11. 28. 46. 27,2 | 15,9  | 11,01 | 10. 29. 40       | 11. 28. 59. 52,4 | 17,6  | 9,00  |
| 10. 13. 50       | 11. 28. 34. 45,2 | 13,9  | 12,75 | 10. 21. 50       | 11. 28. 46. 43,1 | 16,0  | 10,97 | 10. 29. 50       | 11. 29. 0. 10,0  | 17,7  | 8,95  |
| 10. 14. 0        | 11. 28. 34. 59,1 | 14,0  | 12,72 | 10. 22. 0        | 11. 28. 46. 59,1 | 16,0  | 10,93 | 11. 0. 0         | 11. 29. 0. 27,7  | 17,7  | 8,91  |
| 10. 14. 10       | 11. 28. 35. 13,1 | 14,1  | 12,68 | 10. 22. 10       | 11. 28. 47. 15,1 | 16,0  | 10,89 | 11. 0. 10        | 11. 29. 0. 45,4  | 17,7  | 8,86  |
| 10. 14. 20       | 11. 28. 35. 27,2 | 14,1  | 12,65 | 10. 22. 20       | 11. 28. 47. 31,1 | 16,1  | 10,85 | 11. 0. 20        | 11. 29. 1. 3,1   | 17,7  | 8,82  |
| 10. 14. 30       | 11. 28. 35. 41,3 | 14,1  | 12,62 | 10. 22. 30       | 11. 28. 47. 47,2 | 16,1  | 10,81 | 11. 0. 30        | 11. 29. 1. 20,8  | 17,8  | 8,77  |
| 10. 14. 40       | 11. 28. 35. 55,4 | 14,1  | 12,58 | 10. 22. 40       | 11. 28. 48. 3,3  | 16,1  | 10,77 | 11. 0. 40        | 11. 29. 1. 38,6  | 17,8  | 8,73  |
| 10. 14. 50       | 11. 28. 36. 9,5  | 14,2  | 12,55 | 10. 22. 50       | 11. 28. 48. 19,4 | 16,2  | 10,73 | 11. 0. 50        | 11. 29. 1. 56,4  | 17,8  | 8,68  |
| 10. 15. 0        | 11. 28. 36. 23,7 | 14,3  | 12,51 | 10. 23. 0        | 11. 28. 48. 35,6 | 16,2  | 10,69 | 11. 1. 0         | 11. 29. 2. 14,2  | 17,9  | 8,64  |
| 10. 15. 10       | 11. 28. 36. 38,0 | 14,3  | 12,47 | 10. 23. 10       | 11. 28. 48. 51,8 | 16,3  | 10,65 | 11. 1. 10        | 11. 29. 2. 32,1  | 17,9  | 8,59  |
| 10. 15. 20       | 11. 28. 36. 52,3 | 14,4  | 12,44 | 10. 23. 20       | 11. 28. 49. 8,1  | 16,3  | 10,61 | 11. 1. 20        | 11. 29. 2. 50,0  | 17,9  | 8,55  |
| 10. 15. 30       | 11. 28. 37. 6,7  | 14,4  | 12,40 | 10. 23. 30       | 11. 28. 49. 24,4 | 16,4  | 10,57 | 11. 1. 30        | 11. 29. 3. 7,9   | 17,9  | 8,50  |
| 10. 15. 40       | 11. 28. 37. 21,1 | 14,4  | 12,37 | 10. 23. 40       | 11. 28. 49. 40,8 | 16,4  | 10,52 | 11. 1. 40        | 11. 29. 3. 25,8  | 18,0  | 8,46  |
| 10. 15. 50       | 11. 28. 37. 35,5 | 14,5  | 12,33 | 10. 23. 50       | 11. 28. 49. 57,1 | 16,4  | 10,48 | 11. 1. 50        | 11. 29. 3. 43,8  | 18,0  | 8,41  |
| 10. 16. 0        | 11. 28. 37. 50,0 | 14,5  | 12,30 | 10. 24. 0        | 11. 28. 50. 13,5 | 16,5  | 10,44 | 11. 2. 0         | 11. 29. 4. 1,8   | 18,1  | 8,37  |
| 10. 16. 10       | 11. 28. 38. 4,5  | 14,6  | 12,26 | 10. 24. 10       | 11. 28. 50. 30,0 | 16,5  | 10,40 | 11. 2. 10        | 11. 29. 4. 19,9  | 18,1  | 8,32  |
| 10. 16. 20       | 11. 28. 38. 19,1 | 14,6  | 12,22 | 10. 24. 20       | 11. 28. 50. 46,5 | 16,5  | 10,36 | 11. 2. 20        | 11. 29. 4. 38,0  | 18,1  | 8,28  |
| 10. 16. 30       | 11. 28. 38. 33,7 | 14,7  | 12,19 | 10. 24. 30       | 11. 28. 51. 3,0  | 16,5  | 10,32 | 11. 2. 30        | 11. 29. 4. 56,1  | 18,1  | 8,23  |
| 10. 16. 40       | 11. 28. 38. 48,4 | 14,7  | 12,15 | 10. 24. 40       | 11. 28. 51. 19,5 | 16,6  | 10,28 | 11. 2. 40        | 11. 29. 5. 14,2  | 18,1  | 8,19  |
| 10. 16. 50       | 11. 28. 39. 3,1  | 14,7  | 12,11 | 10. 24. 50       | 11. 28. 51. 36,1 | 16,7  | 10,24 | 11. 2. 50        | 11. 29. 5. 32,3  | 18,2  | 8,14  |
| 10. 17. 0        | 11. 28. 39. 17,8 | 14,8  | 12,08 | 10. 25. 0        | 11. 28. 51. 52,8 | 16,7  | 10,20 | 11. 3. 0         | 11. 29. 5. 50,5  | 18,3  | 8,10  |
| 10. 17. 10       | 11. 28. 39. 32,6 | 14,8  | 12,04 | 10. 25. 10       | 11. 28. 52. 9,5  | 16,7  | 10,16 | 11. 3. 10        | 11. 29. 6. 8,8   | 18,3  | 8,05  |
| 10. 17. 20       | 11. 28. 39. 47,4 | 14,9  | 12,00 | 10. 25. 20       | 11. 28. 52. 26,2 | 16,7  | 10,11 | 11. 3. 20        | 11. 29. 6. 27,0  | 18,3  | 8,00  |
| 10. 17. 30       | 11. 28. 40. 2,3  | 14,9  | 11,97 | 10. 25. 30       | 11. 28. 52. 42,9 | 16,7  | 10,07 | 11. 3. 30        | 11. 29. 6. 45,3  | 18,3  | 7,96  |
| 10. 17. 40       | 11. 28. 40. 17,2 | 14,9  | 11,93 | 10. 25. 40       | 11. 28. 52. 59,6 | 16,8  | 10,03 | 11. 3. 40        | 11. 29. 7. 3,6   | 18,3  | 7,92  |
| 10. 17. 50       | 11. 28. 40. 32,1 | 15,0  | 11,89 | 10. 25. 50       | 11. 28. 53. 16,4 | 16,9  | 9,99  | 11. 3. 50        | 11. 29. 7. 21,9  | 18,4  | 7,87  |
| 10. 18. 0        | 11. 28. 40. 47,1 | 15,0  | 11,86 | 10. 26. 0        | 11. 28. 53. 33,3 | 16,9  | 9,95  | 11. 4. 0         | 11. 29. 7. 40,3  | 18,4  | 7,82  |
| 10. 18. 10       | 11. 28. 41. 2,1  | 15,1  | 11,82 | 10. 26. 10       | 11. 28. 53. 50,2 | 16,9  | 9,90  | 11. 4. 10        | 11. 29. 7. 58,7  | 18,4  | 7,77  |
| 10. 18. 20       | 11. 28. 41. 17,2 | 15,2  | 11,78 | 10. 26. 20       | 11. 28. 54. 7,1  | 16,9  | 9,86  | 11. 4. 20        | 11. 29. 8. 17,1  | 18,4  | 7,73  |
| 10. 18. 30       | 11. 28. 41. 32,4 | 15,1  | 11,74 | 10. 26. 30       | 11. 28. 54. 24,0 | 17,0  | 9,82  | 11. 4. 30        | 11. 29. 8. 35,5  | 18,4  | 7,68  |
| 10. 18. 40       | 11. 28. 41. 47,5 | 15,2  | 11,71 | 10. 26. 40       | 11. 28. 54. 41,0 | 17,0  | 9,78  | 11. 4. 40        | 11. 29. 8. 53,9  | 18,5  | 7,64  |
| 10. 18. 50       | 11. 28. 42. 2,7  | 15,2  | 11,67 | 10. 26. 50       | 11. 28. 54. 58,0 | 17,1  | 9,73  | 11. 4. 50        | 11. 29. 9. 12,4  | 18,5  | 7,59  |
| 10. 19. 0        | 11. 28. 42. 17,9 | 15,3  | 11,63 | 10. 27. 0        | 11. 28. 55. 15,1 | 17,1  | 9,69  | 11. 5. 0         | 11. 29. 9. 31,0  | 18,6  | 7,54  |
| 10. 19. 10       | 11. 28. 42. 33,2 | 15,3  | 11,59 | 10. 27. 10       | 11. 28. 55. 32,2 | 17,1  | 9,65  | 11. 5. 10        | 11. 29. 9. 49,5  | 18,6  | 7,50  |
| 10. 19. 20       | 11. 28. 42. 48,5 | 15,4  | 11,55 | 10. 27. 20       | 11. 28. 55. 49,3 | 17,1  | 9,61  | 11. 5. 20        | 11. 29. 10. 8,1  | 18,6  | 7,45  |
| 10. 19. 30       | 11. 28. 43. 3,9  | 15,4  | 11,52 | 10. 27. 30       | 11. 28. 56. 6,4  | 17,2  | 9,56  | 11. 5. 30        | 11. 29. 10. 26,7 | 18,7  | 7,40  |
| 10. 19. 40       | 11. 28. 43. 19,3 | 15,4  | 11,48 | 10. 27. 40       | 11. 28. 56. 23,6 | 17,2  | 9,52  | 11. 5. 40        | 11. 29. 10. 45,3 | 18,7  | 7,35  |
| 10. 19. 50       | 11. 28. 43. 34,7 | 15,5  | 11,44 | 10. 27. 50       | 11. 28. 56. 40,8 | 17,3  | 9,48  | 11. 5. 50        | 11. 29. 11. 4,0  | 18,7  | 7,31  |
| 10. 20. 0        | 11. 28. 43. 50,2 | 15,5  | 11,40 | 10. 28. 0        | 11. 28. 56. 58,1 | 17,3  | 9,43  | 11. 6. 0         | 11. 29. 11. 22,7 | 18,7  | 7,26  |



TABLE VII.

Equation of the Sun's Center for 1810, with the Secular Variation.

| Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ | Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ | Mean<br>Anomaly. | Equation.        | Diff.<br>+ | S. V.<br>+ |
|------------------|------------------|------------|------------|------------------|------------------|------------|------------|------------------|------------------|------------|------------|
| S. D. M.         | S. D. M. S.      | S.         | S.         | S. D. M.         | S. D. M. S.      | S.         | S.         | S. D. M.         | S. D. M. S.      | S.         | S.         |
| 11. 6. 0         | 11. 29. 11. 22,7 | 18,7       | 7,26       | 11. 14. 0        | 11. 29. 26. 46,5 | 19,7       | 4,93       | 11. 22. 0        | 11. 29. 42. 50,5 | 20,4       | 2,49       |
| 11. 6. 10        | 11. 29. 11. 41,4 | 18,7       | 7,21       | 11. 14. 10       | 11. 29. 27. 6,2  | 19,8       | 4,88       | 11. 22. 10       | 11. 29. 43. 10,9 | 20,4       | 2,44       |
| 11. 6. 20        | 11. 29. 12. 0,1  | 18,8       | 7,17       | 11. 14. 20       | 11. 29. 27. 26,0 | 19,7       | 4,83       | 11. 22. 20       | 11. 29. 43. 31,3 | 20,4       | 2,39       |
| 11. 6. 30        | 11. 29. 12. 18,9 | 18,7       | 7,12       | 11. 14. 30       | 11. 29. 27. 45,7 | 19,8       | 4,78       | 11. 22. 30       | 11. 29. 43. 51,7 | 20,4       | 2,34       |
| 11. 6. 40        | 11. 29. 12. 37,6 | 18,8       | 7,07       | 11. 14. 40       | 11. 29. 28. 5,5  | 19,8       | 4,73       | 11. 22. 40       | 11. 29. 44. 12,1 | 20,4       | 2,29       |
| 11. 6. 50        | 11. 29. 12. 56,4 | 18,9       | 7,02       | 11. 14. 50       | 11. 29. 28. 25,3 | 19,9       | 4,68       | 11. 22. 50       | 11. 29. 44. 32,5 | 20,4       | 2,23       |
| 11. 7. 0         | 11. 29. 13. 15,3 | 18,9       | 6,98       | 11. 15. 0        | 11. 29. 28. 45,2 | 19,8       | 4,63       | 11. 23. 0        | 11. 29. 44. 52,9 | 20,4       | 2,18       |
| 11. 7. 10        | 11. 29. 13. 34,2 | 18,9       | 6,93       | 11. 15. 10       | 11. 29. 29. 5,0  | 19,9       | 4,58       | 11. 23. 10       | 11. 29. 45. 13,3 | 20,4       | 2,13       |
| 11. 7. 20        | 11. 29. 13. 53,1 | 18,9       | 6,88       | 11. 15. 20       | 11. 29. 29. 24,9 | 19,8       | 4,53       | 11. 23. 20       | 11. 29. 45. 33,7 | 20,5       | 2,08       |
| 11. 7. 30        | 11. 29. 14. 12,0 | 18,9       | 6,83       | 11. 15. 30       | 11. 29. 29. 44,7 | 19,9       | 4,48       | 11. 23. 30       | 11. 29. 45. 54,2 | 20,5       | 2,03       |
| 11. 7. 40        | 11. 29. 14. 30,9 | 18,9       | 6,79       | 11. 15. 40       | 11. 29. 30. 4,6  | 19,9       | 4,43       | 11. 23. 40       | 11. 29. 46. 14,7 | 20,4       | 1,98       |
| 11. 7. 50        | 11. 29. 14. 49,8 | 19,0       | 6,74       | 11. 15. 50       | 11. 29. 30. 24,5 | 19,9       | 4,38       | 11. 23. 50       | 11. 29. 46. 35,1 | 20,4       | 1,92       |
| 11. 8. 0         | 11. 29. 15. 8,8  | 19,0       | 6,69       | 11. 16. 0        | 11. 29. 30. 44,4 | 20,0       | 4,33       | 11. 24. 0        | 11. 29. 46. 55,5 | 20,5       | 1,87       |
| 11. 8. 10        | 11. 29. 15. 27,8 | 19,0       | 6,64       | 11. 16. 10       | 11. 29. 31. 4,4  | 19,9       | 4,28       | 11. 24. 10       | 11. 29. 47. 16,0 | 20,5       | 1,82       |
| 11. 8. 20        | 11. 29. 15. 46,8 | 19,1       | 6,59       | 11. 16. 20       | 11. 29. 31. 24,3 | 20,0       | 4,23       | 11. 24. 20       | 11. 29. 47. 36,5 | 20,5       | 1,77       |
| 11. 8. 30        | 11. 29. 16. 5,9  | 19,0       | 6,55       | 11. 16. 30       | 11. 29. 31. 44,3 | 20,0       | 4,18       | 11. 24. 30       | 11. 29. 47. 57,0 | 20,5       | 1,72       |
| 11. 8. 40        | 11. 29. 16. 24,9 | 19,1       | 6,50       | 11. 16. 40       | 11. 29. 32. 4,3  | 20,0       | 4,13       | 11. 24. 40       | 11. 29. 48. 17,5 | 20,4       | 1,67       |
| 11. 8. 50        | 11. 29. 16. 44,0 | 19,1       | 6,45       | 11. 16. 50       | 11. 29. 32. 24,3 | 20,0       | 4,08       | 11. 24. 50       | 11. 29. 48. 37,9 | 20,5       | 1,61       |
| 11. 9. 0         | 11. 29. 17. 3,1  | 19,2       | 6,40       | 11. 17. 0        | 11. 29. 32. 44,3 | 20,1       | 4,03       | 11. 25. 0        | 11. 29. 48. 58,4 | 20,6       | 1,56       |
| 11. 9. 10        | 11. 29. 17. 22,3 | 19,1       | 6,35       | 11. 17. 10       | 11. 29. 33. 4,4  | 20,0       | 3,98       | 11. 25. 10       | 11. 29. 49. 19,0 | 20,5       | 1,51       |
| 11. 9. 20        | 11. 29. 17. 41,4 | 19,2       | 6,31       | 11. 17. 20       | 11. 29. 33. 24,4 | 20,1       | 3,93       | 11. 25. 20       | 11. 29. 49. 39,5 | 20,5       | 1,46       |
| 11. 9. 30        | 11. 29. 18. 0,6  | 19,2       | 6,26       | 11. 17. 30       | 11. 29. 33. 44,5 | 20,0       | 3,87       | 11. 25. 30       | 11. 29. 50. 0,0  | 20,5       | 1,40       |
| 11. 9. 40        | 11. 29. 18. 19,8 | 19,2       | 6,21       | 11. 17. 40       | 11. 29. 34. 4,5  | 20,1       | 3,82       | 11. 25. 40       | 11. 29. 50. 20,5 | 20,5       | 1,35       |
| 11. 9. 50        | 11. 29. 18. 39,0 | 19,3       | 6,16       | 11. 17. 50       | 11. 29. 34. 24,6 | 20,1       | 3,77       | 11. 25. 50       | 11. 29. 50. 41,0 | 20,5       | 1,29       |
| 11. 10. 0        | 11. 29. 18. 58,3 | 19,3       | 6,11       | 11. 18. 0        | 11. 29. 34. 44,7 | 20,1       | 3,72       | 11. 26. 0        | 11. 29. 51. 1,5  | 20,5       | 1,24       |
| 11. 10. 10       | 11. 29. 19. 17,6 | 19,3       | 6,06       | 11. 18. 10       | 11. 29. 35. 4,8  | 20,1       | 3,67       | 11. 26. 10       | 11. 29. 51. 22,0 | 20,6       | 1,19       |
| 11. 10. 20       | 11. 29. 19. 36,9 | 19,3       | 6,02       | 11. 18. 20       | 11. 29. 35. 24,9 | 20,2       | 3,62       | 11. 26. 20       | 11. 29. 51. 42,6 | 20,5       | 1,14       |
| 11. 10. 30       | 11. 29. 19. 56,2 | 19,3       | 5,97       | 11. 18. 30       | 11. 29. 35. 45,1 | 20,1       | 3,56       | 11. 26. 30       | 11. 29. 52. 3,1  | 20,5       | 1,09       |
| 11. 10. 40       | 11. 29. 20. 15,5 | 19,4       | 5,92       | 11. 18. 40       | 11. 29. 36. 5,2  | 20,1       | 3,52       | 11. 26. 40       | 11. 29. 52. 23,6 | 20,6       | 1,04       |
| 11. 10. 50       | 11. 29. 20. 34,9 | 19,4       | 5,87       | 11. 18. 50       | 11. 29. 36. 25,3 | 20,2       | 3,47       | 11. 26. 50       | 11. 29. 52. 44,2 | 20,5       | 0,99       |
| 11. 11. 0        | 11. 29. 20. 54,3 | 19,4       | 5,82       | 11. 19. 0        | 11. 29. 36. 45,5 | 20,2       | 3,42       | 11. 27. 0        | 11. 29. 53. 4,7  | 20,6       | 0,94       |
| 11. 11. 10       | 11. 29. 21. 13,7 | 19,4       | 5,77       | 11. 19. 10       | 11. 29. 37. 05,7 | 20,2       | 3,36       | 11. 27. 10       | 11. 29. 53. 25,3 | 20,6       | 0,89       |
| 11. 11. 20       | 11. 29. 21. 33,1 | 19,5       | 5,72       | 11. 19. 20       | 11. 29. 37. 25,9 | 20,2       | 3,31       | 11. 27. 20       | 11. 29. 53. 45,9 | 20,6       | 0,83       |
| 11. 11. 30       | 11. 29. 21. 52,6 | 19,5       | 5,67       | 11. 19. 30       | 11. 29. 37. 46,1 | 20,2       | 3,26       | 11. 27. 30       | 11. 29. 54. 6,5  | 20,5       | 0,78       |
| 11. 11. 40       | 11. 29. 22. 12,0 | 19,5       | 5,62       | 11. 19. 40       | 11. 29. 38. 6,3  | 20,3       | 3,21       | 11. 27. 40       | 11. 29. 54. 27,0 | 20,5       | 0,73       |
| 11. 11. 50       | 11. 29. 22. 31,5 | 19,5       | 5,57       | 11. 19. 50       | 11. 29. 38. 26,6 | 20,2       | 3,16       | 11. 27. 50       | 11. 29. 54. 47,5 | 20,6       | 0,68       |
| 11. 12. 0        | 11. 29. 22. 51,0 | 19,5       | 5,52       | 11. 20. 0        | 11. 29. 38. 46,8 | 20,3       | 3,11       | 11. 28. 0        | 11. 29. 55. 8,1  | 20,5       | 0,62       |
| 11. 12. 10       | 11. 29. 23. 10,5 | 19,5       | 5,48       | 11. 20. 10       | 11. 29. 39. 7,1  | 20,2       | 3,06       | 11. 28. 10       | 11. 29. 55. 28,6 | 20,6       | 0,57       |
| 11. 12. 20       | 11. 29. 23. 30,0 | 19,6       | 5,43       | 11. 20. 20       | 11. 29. 39. 27,3 | 20,3       | 3,01       | 11. 28. 20       | 11. 29. 55. 49,2 | 20,5       | 0,52       |
| 11. 12. 30       | 11. 29. 23. 49,6 | 19,6       | 5,38       | 11. 20. 30       | 11. 29. 39. 47,6 | 20,3       | 2,96       | 11. 28. 30       | 11. 29. 56. 9,7  | 20,6       | 0,47       |
| 11. 12. 40       | 11. 29. 24. 9,2  | 19,6       | 5,33       | 11. 20. 40       | 11. 29. 40. 7,9  | 20,3       | 2,90       | 11. 28. 40       | 11. 29. 56. 30,3 | 20,6       | 0,42       |
| 11. 12. 50       | 11. 29. 24. 28,8 | 19,6       | 5,28       | 11. 20. 50       | 11. 29. 40. 28,2 | 20,3       | 2,85       | 11. 28. 50       | 11. 29. 56. 50,9 | 20,6       | 0,36       |
| 11. 13. 0        | 11. 29. 24. 48,4 | 19,6       | 5,23       | 11. 21. 0        | 11. 29. 40. 48,5 | 20,3       | 2,80       | 11. 29. 0        | 11. 29. 57. 11,5 | 20,6       | 0,30       |
| 11. 13. 10       | 11. 29. 25. 8,0  | 19,6       | 5,18       | 11. 21. 10       | 11. 29. 41. 8,8  | 20,3       | 2,75       | 11. 29. 10       | 11. 29. 57. 32,1 | 20,6       | 0,26       |
| 11. 13. 20       | 11. 29. 25. 27,6 | 19,7       | 5,13       | 11. 21. 20       | 11. 29. 41. 29,1 | 20,4       | 2,70       | 11. 29. 20       | 11. 29. 57. 52,7 | 20,6       | 0,21       |
| 11. 13. 30       | 11. 29. 25. 47,3 | 19,7       | 5,08       | 11. 21. 30       | 11. 29. 41. 49,5 | 20,4       | 2,65       | 11. 29. 30       | 11. 29. 58. 13,3 | 20,5       | 0,16       |
| 11. 13. 40       | 11. 29. 26. 7,0  | 19,7       | 5,03       | 11. 21. 40       | 11. 29. 42. 9,9  | 20,3       | 2,60       | 11. 29. 40       | 11. 29. 58. 33,8 | 20,6       | 0,10       |
| 11. 13. 50       | 11. 29. 26. 26,7 | 19,8       | 4,98       | 11. 21. 50       | 11. 29. 42. 30,2 | 20,3       | 2,54       | 11. 29. 50       | 11. 29. 58. 54,4 | 20,6       | 0,05       |
| 11. 14. 0        | 11. 29. 26. 46,5 |            | 4,93       | 11. 22. 0        | 11. 29. 42. 50,5 |            | 2,49       | 12. 0. 0         | 11. 29. 59. 15,0 |            | 0,00       |



TABLE VIII.

## NUTATION.

ARGUMENT. Supplement of the Node, or N.

| N   | Longitude | Right<br>Ascension. | Obliquity. | Equation<br>of Time. | N    | Longitude | Right<br>Ascension. | Obliquity. | Equation<br>of Time. |
|-----|-----------|---------------------|------------|----------------------|------|-----------|---------------------|------------|----------------------|
|     | s.        | s.                  | s.         | s.                   |      | s.        | s.                  | s.         | s.                   |
| 00  | + 0,0     | + 0,0               | + 9,6      | + 0,00               | 500  | - 0,0     | - 0,0               | - 9,6      | - 0,00               |
| 10  | 1,1       | 1,1                 | 9,6        | 0,01                 | 510  | 1,0       | 1,1                 | 9,6        | 0,01                 |
| 20  | 2,2       | 2,1                 | 9,6        | 0,01                 | 520  | 2,2       | 2,1                 | 9,5        | 0,01                 |
| 30  | 3,4       | 3,1                 | 9,5        | 0,02                 | 530  | 3,4       | 3,1                 | 9,5        | 0,02                 |
| 40  | 4,5       | 4,1                 | 9,3        | 0,02                 | 540  | 4,5       | 4,1                 | 9,3        | 0,02                 |
| 50  | + 5,6     | + 5,1               | 9,2        | + 0,03               | 550  | 5,6       | 5,1                 | 9,2        | 0,03                 |
| 60  | 6,6       | 6,1                 | + 9,0      | 0,04                 | 560  | - 6,6     | - 6,1               | - 9,0      | - 0,04               |
| 70  | 7,7       | 7,0                 | 8,7        | 0,04                 | 570  | 7,7       | 7,0                 | 8,7        | 0,04                 |
| 80  | 8,7       | 8,0                 | 8,5        | 0,05                 | 580  | 8,7       | 8,0                 | 8,5        | 0,05                 |
| 90  | 9,7       | 8,9                 | 8,1        | 0,05                 | 590  | 9,7       | 8,9                 | 8,1        | 0,05                 |
| 100 | + 10,6    | + 9,7               | 7,8        | + 0,06               | 600  | 10,6      | 9,7                 | 7,8        | - 0,06               |
| 110 | 11,5      | 10,5                | + 7,4      | 0,06                 | 610  | - 11,5    | - 10,5              | - 7,4      | - 0,06               |
| 120 | 12,3      | 11,3                | 7,0        | 0,07                 | 620  | 12,3      | 11,3                | 7,0        | 0,07                 |
| 130 | 13,1      | 12,1                | 6,6        | 0,07                 | 630  | 13,1      | 12,1                | 6,6        | 0,07                 |
| 140 | 13,9      | 12,7                | 6,1        | 0,08                 | 640  | 13,9      | 12,7                | 6,1        | 0,08                 |
| 150 | + 14,6    | + 13,4              | 5,7        | + 0,08               | 650  | 14,6      | 13,4                | 5,7        | 0,08                 |
| 160 | 15,2      | 14,0                | + 5,2      | 0,08                 | 660  | - 15,2    | - 14,0              | - 5,2      | - 0,08               |
| 170 | 15,8      | 14,5                | 4,6        | 0,09                 | 670  | 15,8      | 14,5                | 4,6        | 0,09                 |
| 180 | 16,3      | 15,0                | 4,1        | 0,09                 | 680  | 16,3      | 15,0                | 4,1        | 0,09                 |
| 190 | 16,8      | 15,4                | 3,5        | 0,09                 | 690  | 16,8      | 15,4                | 3,5        | 0,09                 |
| 200 | + 17,2    | + 15,7              | 3,0        | + 0,09               | 700  | 17,2      | 15,7                | 3,0        | 0,09                 |
| 210 | 17,5      | 16,0                | + 2,4      | 0,10                 | 710  | - 17,5    | - 16,0              | - 2,4      | - 0,10               |
| 220 | 17,7      | 16,3                | 1,8        | 0,10                 | 720  | 17,7      | 16,3                | 1,8        | 0,10                 |
| 230 | 17,9      | 16,4                | 1,2        | 0,10                 | 730  | 17,9      | 16,4                | 1,2        | 0,10                 |
| 240 | 18,0      | 16,5                | 0,6        | 0,10                 | 740  | 18,0      | 16,5                | 0,6        | 0,10                 |
| 250 | + 18,0    | + 16,5              | + 0,0      | + 0,10               | 750  | - 18,0    | 16,5                | - 0,0      | 0,10                 |
| 260 | 18,0      | 16,5                | - 0,6      | 0,10                 | 760  | 18,0      | - 16,5              | + 0,6      | - 0,10               |
| 270 | 17,9      | 16,4                | 1,2        | 0,10                 | 770  | 17,9      | 16,4                | 1,2        | 0,10                 |
| 280 | 17,7      | 16,3                | 1,8        | 0,10                 | 780  | 17,7      | 16,3                | 1,8        | 0,10                 |
| 290 | 17,5      | 16,0                | 2,4        | 0,10                 | 790  | 17,5      | 16,0                | 2,4        | 0,10                 |
| 300 | + 17,2    | + 15,7              | - 3,0      | + 0,09               | 800  | - 17,2    | 15,7                | 3,0        | 0,09                 |
| 310 | 16,8      | 15,4                | 3,5        | 0,09                 | 810  | 16,8      | - 15,4              | + 3,5      | - 0,09               |
| 320 | 16,3      | 15,0                | 4,1        | 0,09                 | 820  | 16,3      | 15,0                | 4,1        | 0,09                 |
| 330 | 15,8      | 14,5                | 4,6        | 0,09                 | 830  | 15,8      | 14,5                | 4,6        | 0,09                 |
| 340 | 15,2      | 14,0                | 5,2        | 0,08                 | 840  | 15,2      | 14,0                | 5,2        | 0,08                 |
| 350 | + 14,6    | + 13,4              | - 5,7      | + 0,08               | 850  | - 14,6    | 13,4                | 5,7        | 0,08                 |
| 360 | 13,9      | 12,7                | 6,1        | 0,08                 | 860  | 13,9      | - 12,7              | + 6,1      | - 0,08               |
| 370 | 13,1      | 12,1                | 6,6        | 0,07                 | 870  | 13,1      | 12,1                | 6,6        | 0,07                 |
| 380 | 12,3      | 11,3                | 7,0        | 0,07                 | 880  | 12,3      | 11,3                | 7,0        | 0,07                 |
| 390 | 11,5      | 10,5                | 7,4        | 0,06                 | 890  | 11,5      | 10,5                | 7,4        | 0,06                 |
| 400 | + 10,6    | + 9,7               | - 7,8      | + 0,06               | 900  | - 10,6    | 9,7                 | 7,8        | 0,06                 |
| 410 | 9,7       | 8,9                 | 8,1        | 0,05                 | 910  | 9,7       | - 8,9               | + 8,1      | - 0,05               |
| 420 | 8,7       | 8,0                 | 8,5        | 0,05                 | 920  | 8,7       | 8,0                 | 8,5        | 0,05                 |
| 430 | 7,7       | 7,0                 | 8,7        | 0,04                 | 930  | 7,7       | 7,0                 | 8,7        | 0,04                 |
| 440 | 6,6       | 6,1                 | 9,0        | 0,04                 | 940  | 6,6       | 6,1                 | 9,0        | 0,04                 |
| 450 | + 5,6     | + 5,1               | - 9,2      | + 0,03               | 950  | - 5,6     | 5,1                 | 9,2        | 0,03                 |
| 460 | 4,5       | 4,1                 | 9,3        | 0,02                 | 960  | 4,5       | - 4,1               | + 9,3      | - 0,02               |
| 470 | 3,4       | 3,1                 | 9,5        | 0,02                 | 970  | 3,4       | 3,1                 | 9,5        | 0,02                 |
| 480 | 2,2       | 2,1                 | 9,6        | 0,01                 | 980  | 2,2       | 2,1                 | 9,6        | 0,01                 |
| 490 | 1,0       | 1,0                 | 9,6        | 0,01                 | 990  | 1,0       | 1,0                 | 9,6        | 0,01                 |
| 500 | + 0,0     | + 0,0               | - 9,6      | + 0,00               | 1000 | - 0,0     | - 0,0               | + 9,6      | - 0,00               |



## Continuation of Tab. VIII.

## SOLAR NUTATION.

| Months and Days. |          | Long. | Obliq. |
|------------------|----------|-------|--------|
| 21 March.        | 23 Sept. | — 0,0 | + 0,4  |
| 26               | 28       | 0,2   | 0,4    |
| 31               | 3 Oct.   | 0,3   | 0,4    |
| 5 April.         | 8        | 0,5   | 0,4    |
| 10               | 14       | 0,7   | 0,3    |
| 15               | 19       | 0,8   | 0,3    |
| 20               | 24       | 0,9   | 0,2    |
| 25               | 29       | 0,9   | 0,1    |
| 1 May.           | 3 Nov.   | 1,0   | + 0,1  |
| 6                | 8        | 1,0   | 0,0    |
| 11               | 13       | 1,0   | — 0,1  |
| 16               | 18       | 0,9   | 0,1    |
| 21               | 22       | 0,9   | 0,2    |
| 27               | 27       | 0,8   | 0,3    |
| 1 June.          | 2 Dec.   | 0,7   | 0,3    |
| 6                | 7        | 0,5   | 0,4    |
| 11               | 12       | 0,3   | 0,4    |
| 16               | 17       | — 0,2 | 0,4    |
| 22               | 22       | 0,0   | 0,4    |
| 27               | 27       | + 0,2 | 0,4    |
| 2 July.          | 1 Jan.   | 0,3   | 0,4    |
| 7                | 6        | 0,5   | 0,4    |
| 13               | 11       | 0,7   | 0,3    |
| 18               | 16       | 0,8   | 0,3    |
| 23               | 20       | 0,9   | 0,2    |
| 28               | 25       | 0,9   | 0,1    |
| 3 August.        | 30       | 1,0   | — 0,1  |
| 8                | 4 Feb.   | 1,0   | 0,0    |
| 13               | 9        | 1,0   | + 0,1  |
| 18               | 14       | 0,9   | 0,1    |
| 23               | 19       | 0,9   | 0,2    |
| 29               | 24       | 0,8   | 0,3    |
| 3 Sept.          | 1 March. | 0,7   | 0,3    |
| 8                | 6        | 0,5   | 0,4    |
| 13               | 11       | 0,3   | 0,4    |
| 18               | 16       | 0,2   | 0,4    |
| 23               | 21       | + 0,0 | + 0,4  |

## TABLE IX.

## Mean Motion of the Sun in Right Ascension for Sidereal Hours.

| Hours. | Motion.  | Minutes. | Motion. | Minutes. | Motion. | Seconds. | Motion. |
|--------|----------|----------|---------|----------|---------|----------|---------|
| 1      | 0. 9,83  | 1        | 0,16    | 31       | 5,08    | 3        | 0,01    |
| 2      | 0. 19,66 | 2        | 0,33    | 32       | 5,24    | 6        | 0,02    |
| 3      | 0. 29,49 | 3        | 0,49    | 33       | 5,41    | 9        | 0,02    |
| 4      | 0. 39,32 | 4        | 0,65    | 34       | 5,57    | 12       | 0,03    |
| 5      | 0. 49,15 | 5        | 0,82    | 35       | 5,73    | 15       | 0,04    |
| 6      | 0. 58,98 | 6        | 0,98    | 36       | 5,90    | 18       | 0,05    |
| 7      | 1. 8,81  | 7        | 1,15    | 37       | 6,06    | 21       | 0,06    |
| 8      | 1. 18,64 | 8        | 1,31    | 38       | 6,22    | 24       | 0,06    |
| 9      | 1. 28,46 | 9        | 1,47    | 39       | 6,39    | 27       | 0,07    |
| 10     | 1. 38,29 | 10       | 1,64    | 40       | 6,55    | 30       | 0,08    |
| 11     | 1. 48,12 | 11       | 1,80    | 41       | 6,72    | 33       | 0,09    |
| 12     | 1. 57,95 | 12       | 1,97    | 42       | 6,88    | 36       | 0,10    |
| 13     | 2. 7,78  | 13       | 2,13    | 43       | 7,04    | 39       | 0,11    |
| 14     | 2. 17,61 | 14       | 2,29    | 44       | 7,21    | 42       | 0,11    |
| 15     | 2. 27,44 | 15       | 2,46    | 45       | 7,37    | 45       | 0,12    |
| 16     | 2. 37,27 | 16       | 2,62    | 46       | 7,54    | 48       | 0,13    |
| 17     | 2. 47,10 | 17       | 2,78    | 47       | 7,70    | 51       | 0,14    |
| 18     | 2. 56,93 | 18       | 2,95    | 48       | 7,86    | 54       | 0,15    |
| 19     | 3. 6,76  | 19       | 3,11    | 49       | 8,03    | 57       | 0,16    |
| 20     | 3. 16,59 | 20       | 3,28    | 50       | 8,19    | 60       | 0,16    |
| 21     | 3. 26,42 | 21       | 3,44    | 51       | 8,35    |          |         |
| 22     | 3. 36,25 | 22       | 3,60    | 52       | 8,51    |          |         |
| 23     | 3. 46,08 | 23       | 3,77    | 53       | 8,68    |          |         |
| 24     | 3. 55,91 | 24       | 3,93    | 54       | 8,85    |          |         |
| 25     | 4. 5,74  | 25       | 4,10    | 55       | 9,01    |          |         |
| 26     | 4. 15,57 | 26       | 4,26    | 56       | 9,17    |          |         |
| 27     | 4. 25,40 | 27       | 4,42    | 57       | 9,34    |          |         |
| 28     | 4. 35,22 | 28       | 4,59    | 58       | 9,50    |          |         |
| 29     | 4. 45,05 | 29       | 4,75    | 59       | 9,67    |          |         |
| 30     | 4. 54,88 | 30       | 4,91    | 60       | 9,83    |          |         |

| Sidereal Days. | Motion. |      | Sidereal Days. | Motion. |     |      | Sidereal Days. | Motion. |     |      |
|----------------|---------|------|----------------|---------|-----|------|----------------|---------|-----|------|
|                | M.      | S.   |                | H.      | M.  | S.   |                | H.      | M.  | S.   |
| 1              | 3.      | 55,9 | 11             | 0.      | 43. | 15,0 | 21             | 1.      | 22. | 34,1 |
| 2              | 7.      | 51,8 | 12             | 0.      | 47. | 10,9 | 22             | 1.      | 26. | 30,0 |
| 3              | 11.     | 47,7 | 13             | 0.      | 51. | 6,8  | 23             | 1.      | 30. | 25,9 |
| 4              | 15.     | 43,6 | 14             | 0.      | 55. | 2,7  | 24             | 1.      | 34. | 21,8 |
| 5              | 19.     | 39,5 | 15             | 0.      | 58. | 58,6 | 25             | 1.      | 38. | 17,7 |
| 6              | 23.     | 35,4 | 16             | 1.      | 2.  | 54,5 | 26             | 1.      | 42. | 13,6 |
| 7              | 27.     | 31,4 | 17             | 1.      | 6.  | 50,4 | 27             | 1.      | 46. | 9,5  |
| 8              | 31.     | 27,3 | 18             | 1.      | 10. | 46,3 | 28             | 1.      | 50. | 5,4  |
| 9              | 35.     | 23,2 | 19             | 1.      | 14. | 42,3 | 29             | 1.      | 54. | 1,3  |
| 10             | 39.     | 19,1 | 20             | 1.      | 18. | 38,2 | 30             | 1.      | 57. | 57,2 |



TABLE X.  
Lunar Equation, 1st Part.  
ARGUMENT A.

| A.  | Equation<br>A. | A.   | Equation<br>A. |
|-----|----------------|------|----------------|
| 0   | "              | 500  | "              |
| 10  | 7,5            | 510  | 7,0            |
| 20  | 8,0            | 520  | 6,6            |
| 30  | 8,4            | 530  | 6,1            |
| 40  | 8,9            | 540  | 5,6            |
| 50  | 9,4            | 550  | 5,2            |
| 60  | 10,3           | 560  | 4,7            |
| 70  | 10,7           | 570  | 4,3            |
| 80  | 11,1           | 580  | 3,9            |
| 90  | 11,5           | 590  | 3,5            |
| 100 | 11,9           | 600  | 3,1            |
| 110 | 12,3           | 610  | 2,7            |
| 120 | 12,6           | 620  | 2,4            |
| 130 | 13,0           | 630  | 2,0            |
| 140 | 13,3           | 640  | 1,7            |
| 150 | 13,6           | 650  | 1,4            |
| 160 | 13,8           | 660  | 1,2            |
| 170 | 14,1           | 670  | 0,9            |
| 180 | 14,3           | 680  | 0,7            |
| 190 | 14,5           | 690  | 0,5            |
| 200 | 14,6           | 700  | 0,4            |
| 210 | 14,8           | 710  | 0,2            |
| 220 | 14,9           | 720  | 0,1            |
| 230 | 14,9           | 730  | 0,1            |
| 240 | 15,0           | 740  | 0,0            |
| 250 | 15,0           | 750  | 0,0            |
| 260 | 15,0           | 760  | 0,0            |
| 270 | 14,9           | 770  | 0,1            |
| 280 | 14,9           | 780  | 0,1            |
| 290 | 14,8           | 790  | 0,2            |
| 300 | 14,6           | 800  | 0,4            |
| 310 | 14,5           | 810  | 0,5            |
| 320 | 14,2           | 820  | 0,7            |
| 330 | 14,1           | 830  | 0,9            |
| 340 | 13,8           | 840  | 1,2            |
| 350 | 13,6           | 850  | 1,4            |
| 360 | 13,3           | 860  | 1,7            |
| 370 | 13,0           | 870  | 2,0            |
| 380 | 12,6           | 880  | 2,4            |
| 390 | 12,3           | 890  | 2,7            |
| 400 | 11,9           | 900  | 3,1            |
| 410 | 11,5           | 910  | 3,5            |
| 420 | 11,1           | 920  | 3,9            |
| 430 | 10,7           | 930  | 4,3            |
| 440 | 10,3           | 940  | 4,7            |
| 450 | 9,8            | 950  | 5,2            |
| 460 | 9,4            | 960  | 5,6            |
| 470 | 8,9            | 970  | 6,1            |
| 480 | 8,4            | 980  | 6,6            |
| 490 | 8,0            | 990  | 7,0            |
| 500 | 7,5            | 1000 | 7,5            |

Continuation of TABLE X.

Lunar Equation, Second Part.

ARGUMENTS. First Part, and Mean Anomaly.

| Mean<br>Anomaly. | 0"  | 1"  | 2"  | 3"  | 4"  | 11" | 12" | 13" | 14" | 15" |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| S. D.            | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   |
| O. 0             | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| O. 20            | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| I. 10            | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| 20               | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 |
| II. 0            | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 |
| 10               | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| III. 0           | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| IV. 0            | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 |
| 10               | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 |
| IV. 20           | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 |
| V. 0             | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 |
| VI. 0            | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 |
| VII. 0           | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 |
| 20               | 0,0 | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 |
| VIII. 0          | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 |
| IX. 0            | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| X. 10            | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 |
| 20               | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| XI. 0            | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| XI. 20           | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |
| XII. 0           | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 |



Lunar Equation, Third Part.

A

| M    | 0   | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 0    | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "    |
| 50   | 0,4 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,4 | 0,6 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,6 | 0,4  |
| 100  | 0,4 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,3 | 0,4 | 0,6 | 0,7 | 0,7 | 0,7 | 0,6 | 0,7 | 0,7 | 0,6 | 0,5 | 0,4  |
|      | 0,4 | 0,3 | 0,2 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 | 0,2 | 0,3 | 0,4 | 0,5 | 0,6 | 0,7 | 0,6 | 0,6 | 0,6 | 0,6 | 0,6 | 0,5 | 0,4  |
| 150  | 0,4 | 0,3 | 0,2 | 0,2 | 0,2 | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 | 0,4 | 0,5 | 0,6 | 0,6 | 0,6 | 0,5 | 0,5 | 0,6 | 0,5 | 0,5 | 0,4  |
| 200  | 0,4 | 0,3 | 0,3 | 0,3 | 0,3 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,5 | 0,5 | 0,5 | 0,5 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4  |
| 250  | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,5 | 0,5 | 0,5 | 0,4 | 0,4 | 0,4 | 0,4 | 0,5 | 0,4 | 0,4 | 0,3 | 0,3 | 0,3 | 0,4 | 0,4 | 0,4  |
| 300  | 0,4 | 0,4 | 0,4 | 0,5 | 0,5 | 0,6 | 0,6 | 0,6 | 0,5 | 0,4 | 0,4 | 0,4 | 0,4 | 0,3 | 0,3 | 0,2 | 0,2 | 0,2 | 0,3 | 0,4 | 0,4  |
| 350  | 0,4 | 0,5 | 0,5 | 0,6 | 0,6 | 0,6 | 0,7 | 0,6 | 0,6 | 0,5 | 0,4 | 0,3 | 0,3 | 0,3 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,3 | 0,4  |
| 400  | 0,4 | 0,5 | 0,6 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,3 | 0,4  |
| 450  | 0,4 | 0,5 | 0,6 | 0,7 | 0,7 | 0,8 | 0,8 | 0,7 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,1 | 0,1 | 0,0 | 0,0 | 0,1 | 0,2 | 0,3 | 0,4  |
| 500  | 0,4 | 0,5 | 0,6 | 0,7 | 0,8 | 0,8 | 0,8 | 0,7 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,1 | 0,0 | 0,0 | 0,0 | 0,1 | 0,2 | 0,3 | 0,4  |
| 550  | 0,4 | 0,5 | 0,6 | 0,7 | 0,8 | 0,8 | 0,7 | 0,7 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,1 | 0,0 | 0,0 | 0,1 | 0,1 | 0,2 | 0,3 | 0,4  |
| 600  | 0,4 | 0,5 | 0,6 | 0,7 | 0,7 | 0,7 | 0,7 | 0,6 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 | 0,3 | 0,4  |
| 650  | 0,4 | 0,5 | 0,6 | 0,6 | 0,7 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,1 | 0,2 | 0,2 | 0,3 | 0,3 | 0,3 | 0,4  |
| 700  | 0,4 | 0,4 | 0,5 | 0,6 | 0,6 | 0,6 | 0,5 | 0,5 | 0,4 | 0,4 | 0,4 | 0,3 | 0,3 | 0,2 | 0,2 | 0,2 | 0,3 | 0,3 | 0,4 | 0,4 | 0,4  |
| 750  | 0,4 | 0,4 | 0,4 | 0,5 | 0,5 | 0,5 | 0,4 | 0,4 | 0,3 | 0,4 | 0,4 | 0,4 | 0,4 | 0,3 | 0,3 | 0,3 | 0,4 | 0,4 | 0,5 | 0,4 | 0,4  |
| 800  | 0,4 | 0,4 | 0,3 | 0,4 | 0,4 | 0,4 | 0,3 | 0,3 | 0,3 | 0,3 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,5 | 0,5 | 0,5 | 0,5 | 0,4  |
| 850  | 0,4 | 0,3 | 0,3 | 0,3 | 0,2 | 0,3 | 0,2 | 0,2 | 0,2 | 0,3 | 0,4 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,6 | 0,6 | 0,6 | 0,5 | 0,4  |
| 900  | 0,4 | 0,3 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,1 | 0,2 | 0,3 | 0,4 | 0,5 | 0,6 | 0,6 | 0,6 | 0,6 | 0,6 | 0,7 | 0,6 | 0,5 | 0,4  |
| 950  | 0,4 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,3 | 0,4 | 0,5 | 0,6 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,6 | 0,4  |
| 1000 | 0,4 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,4 | 0,6 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,6 | 0,4  |



TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  | 180  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    | "    |
| 20   | 21,6 | 20,8 | 19,8 | 19,0 | 17,9 | 16,8 | 15,9 | 14,7 | 14,0 | 13,2 | 12,8 | 12,5 | 12,2 | 12,2 | 12,3 | 12,4 | 12,8 | 13,3 | 13,9 |
| 40   | 23,1 | 22,7 | 21,6 | 21,0 | 20,1 | 19,3 | 18,4 | 17,4 | 16,4 | 15,5 | 14,5 | 13,8 | 13,4 | 12,9 | 12,6 | 12,3 | 12,2 | 12,4 | 12,9 |
| 60   | 23,5 | 23,2 | 22,9 | 22,7 | 22,0 | 21,1 | 20,4 | 19,5 | 18,7 | 17,9 | 16,9 | 16,1 | 15,3 | 14,4 | 14,0 | 13,5 | 13,0 | 12,9 | 12,6 |
| 80   | 22,2 | 22,5 | 23,1 | 22,7 | 22,8 | 22,5 | 21,9 | 21,3 | 20,5 | 19,9 | 19,1 | 18,2 | 17,4 | 16,7 | 16,0 | 15,2 | 14,5 | 14,0 | 13,6 |
| 100  | 20,0 | 20,7 | 21,4 | 21,7 | 22,1 | 22,3 | 22,2 | 22,2 | 21,7 | 21,3 | 20,7 | 19,9 | 19,3 | 18,7 | 17,7 | 17,1 | 16,4 | 15,9 | 15,4 |
| 120  | 17,6 | 18,6 | 19,2 | 19,9 | 20,5 | 21,0 | 21,6 | 21,7 | 21,6 | 21,6 | 21,5 | 21,1 | 20,5 | 20,2 | 19,5 | 18,9 | 18,2 | 17,5 | 17,1 |
| 140  | 15,3 | 16,0 | 16,9 | 17,7 | 18,4 | 19,2 | 19,8 | 20,2 | 20,7 | 20,8 | 21,1 | 21,1 | 20,8 | 20,7 | 20,4 | 20,0 | 19,7 | 19,2 | 18,5 |
| 160  | 13,6 | 14,2 | 14,8 | 15,5 | 16,2 | 17,0 | 17,6 | 18,3 | 19,0 | 19,4 | 20,0 | 20,0 | 20,4 | 20,4 | 20,2 | 20,0 | 20,1 | 19,7 | 19,5 |
| 180  | 12,7 | 13,2 | 13,6 | 14,1 | 14,6 | 15,0 | 15,7 | 16,4 | 17,0 | 17,3 | 18,1 | 18,7 | 19,2 | 19,1 | 19,4 | 19,7 | 19,5 | 19,6 | 19,3 |
| 200  | 12,7 | 12,9 | 13,1 | 13,5 | 13,9 | 14,0 | 14,5 | 14,8 | 15,0 | 15,8 | 16,4 | 16,8 | 17,2 | 17,7 | 18,5 | 18,5 | 18,5 | 18,8 | 18,4 |
| 220  | 13,2 | 13,2 | 13,2 | 13,4 | 13,7 | 13,8 | 14,1 | 14,2 | 14,5 | 14,5 | 14,8 | 15,2 | 16,0 | 16,2 | 16,6 | 16,8 | 17,5 | 17,6 | 17,7 |
| 240  | 13,5 | 13,6 | 13,9 | 14,1 | 14,1 | 14,1 | 14,2 | 14,3 | 14,5 | 14,6 | 14,6 | 14,7 | 14,8 | 15,0 | 15,3 | 15,7 | 16,1 | 16,2 | 16,6 |
| 260  | 13,6 | 13,8 | 14,1 | 14,4 | 14,6 | 14,8 | 14,8 | 14,9 | 15,1 | 15,1 | 15,1 | 14,9 | 14,8 | 14,7 | 14,8 | 15,0 | 15,1 | 15,4 | 15,7 |
| 280  | 12,8 | 13,3 | 13,8 | 14,2 | 14,6 | 15,0 | 15,3 | 15,6 | 15,5 | 15,5 | 15,6 | 15,6 | 15,6 | 15,7 | 15,3 | 14,8 | 15,0 | 15,0 | 15,1 |
| 300  | 11,5 | 12,3 | 13,0 | 13,4 | 14,0 | 14,6 | 15,1 | 15,4 | 16,0 | 16,2 | 16,2 | 16,3 | 16,2 | 16,2 | 16,2 | 15,9 | 15,8 | 15,8 | 15,5 |
| 320  | 10,1 | 10,9 | 11,3 | 12,1 | 12,9 | 13,7 | 14,2 | 14,9 | 15,4 | 16,0 | 16,4 | 16,5 | 16,7 | 17,0 | 17,1 | 16,9 | 16,9 | 16,6 | 16,5 |
| 340  | 8,2  | 8,8  | 9,6  | 10,6 | 11,3 | 12,0 | 12,9 | 13,7 | 14,3 | 15,0 | 15,8 | 16,3 | 16,8 | 17,3 | 17,5 | 17,6 | 17,7 | 17,6 | 17,5 |
| 360  | 6,9  | 7,5  | 8,1  | 8,4  | 9,4  | 10,1 | 11,1 | 11,9 | 12,7 | 13,6 | 14,4 | 15,2 | 16,0 | 16,4 | 17,2 | 17,8 | 17,9 | 18,1 | 18,3 |
| 380  | 6,5  | 6,5  | 6,8  | 7,4  | 8,0  | 8,4  | 9,1  | 9,9  | 10,8 | 11,5 | 12,6 | 13,4 | 14,4 | 15,2 | 16,0 | 16,7 | 17,4 | 18,1 | 18,4 |
| 400  | 6,8  | 6,5  | 6,3  | 6,4  | 6,7  | 7,0  | 7,6  | 8,2  | 8,9  | 9,6  | 10,6 | 11,4 | 12,4 | 13,4 | 14,3 | 15,3 | 16,1 | 16,9 | 17,5 |
| 420  | 7,5  | 7,1  | 6,7  | 6,4  | 6,2  | 6,4  | 6,5  | 6,9  | 7,5  | 7,9  | 8,7  | 9,4  | 10,3 | 11,2 | 12,3 | 13,2 | 14,2 | 15,1 | 16,0 |
| 440  | 9,1  | 8,4  | 7,6  | 7,1  | 6,7  | 6,5  | 6,3  | 6,2  | 6,7  | 6,8  | 7,2  | 7,8  | 8,4  | 9,2  | 10,0 | 11,0 | 12,2 | 13,0 | 14,1 |
| 460  | 10,6 | 9,8  | 9,0  | 8,6  | 7,9  | 7,2  | 6,7  | 6,4  | 6,4  | 6,4  | 6,6  | 6,8  | 7,1  | 7,6  | 8,4  | 9,0  | 9,9  | 10,9 | 11,8 |
| 480  | 12,1 | 11,5 | 10,5 | 9,6  | 9,0  | 8,5  | 8,0  | 7,3  | 6,8  | 6,6  | 6,5  | 6,4  | 6,5  | 6,8  | 7,2  | 7,4  | 8,1  | 9,0  | 9,7  |
| 500  | 13,6 | 12,8 | 11,9 | 11,0 | 10,4 | 9,6  | 8,8  | 8,2  | 7,7  | 7,2  | 6,8  | 6,4  | 6,5  | 6,5  | 6,4  | 6,6  | 7,0  | 7,5  | 8,2  |
| 520  | 15,1 | 14,4 | 13,4 | 12,4 | 11,6 | 10,8 | 10,1 | 9,3  | 8,6  | 8,1  | 7,5  | 7,1  | 6,8  | 6,7  | 6,5  | 6,3  | 6,5  | 6,6  | 7,0  |
| 540  | 16,5 | 15,6 | 14,8 | 13,9 | 13,1 | 12,3 | 11,3 | 10,5 | 9,7  | 9,1  | 8,6  | 7,9  | 7,4  | 7,0  | 6,8  | 6,5  | 6,3  | 6,1  | 6,3  |
| 560  | 18,1 | 17,5 | 16,4 | 15,5 | 14,5 | 13,7 | 12,8 | 11,8 | 11,1 | 10,4 | 9,7  | 8,9  | 8,2  | 7,6  | 7,2  | 6,8  | 6,5  | 6,3  | 6,2  |
| 580  | 20,4 | 19,3 | 18,2 | 17,6 | 16,5 | 15,4 | 14,4 | 13,4 | 12,7 | 11,6 | 10,8 | 10,2 | 9,2  | 8,6  | 7,9  | 7,5  | 6,8  | 6,6  | 6,3  |
| 600  | 22,8 | 21,7 | 20,7 | 19,7 | 18,4 | 17,6 | 16,6 | 15,5 | 14,3 | 13,4 | 12,5 | 11,6 | 10,6 | 9,8  | 9,1  | 8,4  | 7,7  | 7,3  | 6,6  |
| 620  | 25,2 | 24,1 | 23,1 | 22,2 | 21,2 | 19,9 | 18,6 | 17,8 | 16,6 | 15,6 | 14,5 | 13,4 | 12,6 | 11,4 | 10,5 | 9,5  | 8,7  | 8,1  | 7,4  |
| 640  | 27,3 | 26,5 | 25,6 | 24,7 | 23,5 | 22,5 | 21,6 | 20,4 | 19,0 | 18,1 | 16,8 | 15,7 | 14,7 | 13,5 | 12,4 | 11,4 | 10,4 | 9,5  | 8,7  |
| 660  | 29,0 | 28,5 | 27,7 | 26,9 | 26,2 | 25,1 | 24,1 | 22,9 | 21,8 | 20,8 | 19,6 | 18,4 | 17,2 | 16,2 | 14,9 | 13,7 | 12,5 | 11,4 | 10,4 |
| 680  | 29,8 | 29,6 | 29,2 | 28,5 | 28,1 | 27,4 | 26,5 | 25,6 | 24,5 | 23,4 | 22,5 | 21,2 | 19,8 | 19,0 | 17,6 | 16,5 | 15,1 | 13,9 | 12,8 |
| 700  | 29,7 | 29,6 | 29,5 | 29,5 | 29,1 | 28,8 | 28,2 | 27,6 | 27,0 | 26,0 | 25,0 | 23,8 | 22,8 | 21,7 | 20,4 | 19,3 | 18,1 | 16,8 | 15,7 |
| 720  | 28,8 | 29,2 | 29,3 | 29,5 | 29,5 | 29,5 | 29,2 | 28,8 | 28,4 | 27,8 | 27,2 | 26,4 | 25,2 | 24,3 | 23,3 | 22,1 | 20,7 | 19,7 | 18,5 |
| 740  | 26,9 | 27,6 | 28,3 | 29,0 | 29,2 | 29,4 | 29,4 | 29,3 | 29,1 | 28,9 | 28,4 | 27,9 | 27,3 | 26,4 | 25,7 | 24,5 | 23,7 | 22,5 | 21,1 |
| 760  | 24,7 | 25,7 | 26,6 | 27,3 | 27,9 | 28,5 | 29,1 | 29,0 | 29,2 | 29,3 | 29,1 | 28,8 | 28,4 | 27,7 | 27,4 | 26,6 | 25,9 | 24,9 | 24,0 |
| 780  | 22,2 | 23,5 | 24,3 | 25,3 | 26,2 | 27,0 | 27,6 | 28,3 | 28,6 | 28,7 | 28,9 | 29,1 | 29,0 | 28,7 | 28,3 | 27,8 | 27,3 | 26,8 | 25,9 |
| 800  | 19,6 | 21,0 | 22,0 | 23,2 | 24,2 | 25,1 | 25,9 | 26,7 | 27,3 | 27,8 | 28,4 | 28,5 | 28,7 | 28,7 | 28,8 | 28,7 | 28,3 | 28,0 | 27,2 |
| 820  | 17,2 | 18,5 | 19,3 | 20,9 | 21,8 | 22,9 | 23,9 | 25,0 | 25,8 | 26,4 | 26,9 | 27,6 | 28,1 | 28,3 | 28,4 | 28,5 | 28,5 | 28,4 | 28,2 |
| 840  | 15,2 | 15,9 | 17,0 | 18,4 | 18,9 | 20,7 | 21,7 | 22,8 | 23,8 | 24,8 | 25,6 | 26,2 | 26,6 | 27,3 | 27,8 | 28,1 | 28,3 | 28,1 | 28,1 |
| 860  | 13,2 | 14,0 | 15,0 | 16,0 | 17,0 | 18,2 | 18,8 | 20,3 | 21,7 | 22,7 | 23,6 | 24,5 | 25,3 | 26,2 | 26,7 | 27,2 | 27,5 | 27,9 | 28,1 |
| 880  | 11,5 | 12,2 | 13,0 | 13,9 | 14,9 | 15,9 | 17,1 | 18,0 | 18,9 | 20,3 | 21,4 | 22,6 | 23,5 | 24,5 | 25,1 | 25,9 | 26,6 | 27,1 | 27,4 |
| 900  | 11,0 | 11,2 | 11,5 | 12,2 | 13,0 | 13,7 | 14,8 | 15,7 | 16,8 | 18,1 | 19,1 | 20,2 | 21,1 | 22,4 | 23,3 | 24,2 | 25,1 | 25,8 | 26,5 |
| 920  | 11,2 | 11,2 | 10,9 | 11,5 | 12,5 | 12,1 | 12,8 | 13,7 | 14,5 | 15,5 | 16,6 | 17,9 | 18,5 | 20,1 | 21,3 | 22,1 | 23,1 | 24,7 | 25,0 |
| 940  | 12,1 | 11,6 | 11,5 | 11,1 | 11,2 | 11,3 | 11,7 | 12,1 | 12,7 | 13,4 | 14,4 | 15,2 | 16,4 | 17,7 | 18,4 | 20,0 | 21,0 | 22,2 | 23,0 |
| 960  | 14,0 | 13,3 | 12,6 | 12,3 | 11,6 | 11,5 | 11,3 | 11,4 | 11,6 | 12,0 | 12,8 | 13,3 | 14,2 | 14,9 | 16,1 | 17,5 | 18,2 | 19,6 | 20,8 |
| 980  | 16,7 | 15,6 | 14,6 | 13,7 | 13,1 | 12,5 | 11,9 | 11,7 | 11,6 | 11,4 | 11,7 | 12,1 | 12,6 | 13,3 | 14,1 | 14,4 | 15,9 | 17,2 | 17,9 |
| 1000 | 19,5 | 18,3 | 17,3 | 16,4 | 15,2 | 14,2 | 13,4 | 12,7 | 12,2 | 12,0 | 11,9 | 11,8 | 11,8 | 12,1 | 12,7 | 13,3 | 14,1 | 14,8 | 15,6 |
| 1000 | 21,6 | 20,8 | 19,8 | 19,0 | 17,9 | 16,8 | 15,9 | 14,7 | 14,0 | 13,2 | 12,8 | 12,5 | 12,2 | 12,2 | 12,3 | 12,4 | 12,8 | 13,3 | 13,9 |
| 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  | 180  |      |



TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  | 360  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 13,9 | 14,7 | 15,6 | 16,5 | 17,6 | 18,8 | 20,1 | 21,1 | 22,2 | 23,4 | 24,3 | 25,2 | 25,8 | 26,6 | 27,2 | 27,6 | 27,7 | 27,6 | 27,6 |
| 20   | 12,9 | 13,3 | 14,0 | 14,6 | 15,5 | 16,4 | 17,3 | 18,6 | 19,7 | 20,9 | 21,9 | 23,0 | 24,2 | 24,9 | 25,8 | 26,6 | 27,0 | 27,4 | 27,7 |
| 40   | 12,6 | 12,6 | 13,1 | 13,5 | 14,0 | 14,4 | 15,4 | 16,5 | 17,3 | 18,3 | 19,4 | 20,5 | 21,6 | 22,7 | 23,7 | 24,9 | 25,5 | 26,3 | 26,9 |
| 60   | 13,6 | 13,3 | 13,2 | 13,2 | 13,4 | 13,5 | 14,1 | 14,6 | 15,2 | 16,3 | 17,2 | 18,1 | 18,9 | 20,3 | 21,2 | 22,3 | 23,4 | 24,5 | 25,3 |
| 80   | 15,4 | 14,6 | 14,3 | 13,9 | 13,8 | 13,7 | 13,6 | 14,0 | 14,5 | 14,9 | 15,5 | 16,3 | 17,3 | 18,2 | 19,0 | 20,0 | 21,1 | 22,0 | 23,1 |
| 100  | 17,1 | 16,3 | 15,9 | 15,4 | 14,8 | 14,6 | 14,3 | 14,3 | 14,3 | 14,4 | 14,6 | 15,0 | 15,5 | 16,2 | 16,9 | 17,7 | 18,9 | 19,8 | 20,8 |
| 120  | 18,5 | 18,0 | 17,3 | 16,9 | 16,5 | 16,2 | 15,6 | 15,2 | 14,8 | 14,8 | 15,0 | 14,9 | 15,0 | 15,2 | 15,9 | 16,3 | 17,0 | 17,7 | 18,5 |
| 140  | 19,5 | 19,3 | 18,8 | 18,2 | 17,7 | 17,4 | 17,0 | 16,6 | 16,4 | 15,9 | 15,5 | 15,4 | 15,6 | 15,6 | 15,5 | 15,6 | 16,1 | 16,7 | 17,1 |
| 160  | 19,5 | 19,6 | 19,2 | 19,0 | 18,7 | 18,4 | 18,1 | 17,7 | 17,5 | 17,3 | 16,9 | 16,6 | 16,3 | 15,9 | 16,1 | 16,3 | 16,3 | 16,2 | 16,5 |
| 180  | 18,3 | 18,8 | 19,0 | 19,0 | 18,9 | 18,6 | 18,5 | 18,5 | 18,3 | 18,1 | 17,9 | 17,6 | 17,5 | 17,3 | 17,0 | 16,9 | 16,7 | 16,8 | 16,9 |
| 200  | 17,7 | 17,9 | 18,1 | 18,2 | 18,3 | 18,3 | 18,3 | 18,4 | 18,2 | 18,2 | 18,2 | 18,2 | 18,1 | 18,1 | 17,8 | 17,7 | 17,6 | 17,5 | 17,7 |
| 220  | 16,6 | 16,8 | 17,1 | 17,5 | 17,1 | 17,4 | 17,5 | 17,6 | 17,8 | 17,8 | 18,0 | 18,0 | 18,2 | 18,1 | 18,1 | 18,3 | 18,4 | 18,3 | 18,3 |
| 240  | 15,7 | 15,8 | 16,0 | 16,1 | 16,1 | 16,3 | 16,4 | 16,5 | 16,7 | 16,9 | 17,1 | 17,3 | 17,3 | 17,7 | 17,5 | 18,0 | 18,3 | 18,4 | 18,6 |
| 260  | 15,1 | 15,0 | 15,1 | 15,2 | 15,2 | 15,1 | 15,3 | 15,5 | 15,5 | 15,6 | 15,8 | 16,1 | 16,4 | 16,6 | 16,8 | 16,9 | 17,4 | 17,7 | 18,2 |
| 280  | 15,5 | 15,4 | 15,1 | 14,9 | 14,8 | 14,7 | 15,0 | 14,9 | 14,9 | 14,9 | 14,9 | 14,7 | 15,0 | 15,3 | 15,5 | 15,9 | 16,1 | 16,4 | 16,8 |
| 300  | 16,5 | 16,3 | 15,9 | 15,7 | 15,2 | 14,9 | 14,8 | 14,6 | 14,6 | 14,2 | 14,0 | 14,0 | 13,9 | 13,9 | 14,2 | 14,5 | 14,8 | 15,0 | 15,5 |
| 320  | 17,5 | 17,2 | 17,0 | 16,8 | 16,5 | 16,1 | 15,6 | 15,3 | 14,7 | 14,5 | 14,4 | 13,1 | 13,6 | 13,4 | 13,3 | 13,1 | 13,4 | 13,6 | 13,8 |
| 340  | 18,3 | 18,2 | 18,2 | 17,9 | 17,5 | 17,3 | 16,8 | 16,6 | 16,0 | 15,5 | 15,2 | 14,5 | 14,3 | 13,7 | 13,1 | 13,0 | 12,7 | 12,6 | 12,6 |
| 360  | 18,4 | 18,6 | 18,8 | 18,8 | 18,8 | 18,7 | 18,4 | 17,9 | 17,5 | 17,0 | 16,5 | 15,9 | 15,4 | 14,9 | 14,3 | 13,7 | 13,0 | 12,6 | 12,3 |
| 380  | 17,5 | 18,1 | 18,6 | 19,1 | 19,3 | 19,5 | 19,5 | 19,2 | 18,9 | 18,5 | 17,9 | 17,7 | 16,9 | 16,4 | 15,8 | 15,0 | 14,5 | 13,6 | 13,1 |
| 400  | 16,0 | 16,8 | 17,8 | 18,4 | 18,8 | 19,3 | 19,8 | 19,8 | 20,1 | 19,7 | 19,4 | 19,1 | 18,6 | 18,1 | 17,5 | 17,0 | 16,1 | 15,2 | 14,8 |
| 420  | 14,1 | 15,0 | 15,9 | 16,9 | 17,7 | 18,5 | 19,0 | 19,5 | 20,0 | 20,3 | 20,3 | 20,3 | 20,1 | 19,4 | 19,0 | 18,9 | 18,1 | 17,3 | 16,5 |
| 440  | 11,8 | 12,9 | 13,8 | 14,9 | 16,0 | 16,7 | 17,8 | 18,7 | 19,2 | 19,7 | 20,1 | 20,4 | 20,7 | 20,7 | 20,5 | 20,2 | 19,8 | 19,5 | 18,6 |
| 460  | 9,7  | 10,6 | 11,7 | 12,6 | 13,8 | 14,6 | 15,9 | 16,8 | 17,6 | 18,6 | 19,2 | 19,9 | 20,3 | 20,6 | 21,0 | 20,9 | 20,9 | 20,8 | 20,3 |
| 480  | 8,2  | 8,8  | 9,6  | 10,4 | 11,5 | 12,5 | 13,5 | 14,6 | 15,5 | 16,6 | 17,7 | 18,5 | 19,3 | 19,9 | 20,5 | 20,8 | 21,1 | 21,2 | 21,2 |
| 500  | 7,0  | 7,4  | 8,2  | 8,6  | 9,4  | 10,4 | 11,3 | 12,4 | 13,4 | 14,4 | 15,5 | 16,5 | 17,7 | 18,6 | 19,1 | 19,9 | 20,7 | 21,0 | 21,4 |
| 520  | 6,3  | 6,6  | 7,0  | 7,5  | 8,0  | 8,8  | 9,3  | 10,2 | 11,2 | 12,2 | 13,3 | 14,2 | 15,4 | 16,4 | 17,6 | 18,4 | 19,2 | 19,8 | 20,6 |
| 540  | 6,2  | 6,0  | 6,2  | 6,5  | 6,9  | 7,4  | 7,9  | 8,6  | 9,4  | 10,1 | 11,1 | 12,1 | 13,1 | 14,2 | 15,3 | 16,3 | 17,4 | 18,3 | 19,2 |
| 560  | 6,3  | 6,1  | 6,0  | 6,1  | 6,2  | 6,5  | 6,9  | 7,2  | 7,8  | 8,4  | 9,2  | 10,1 | 11,0 | 11,9 | 13,1 | 14,1 | 15,2 | 16,2 | 17,2 |
| 580  | 6,6  | 6,3  | 6,1  | 5,9  | 5,7  | 5,9  | 6,0  | 6,3  | 6,6  | 7,0  | 7,6  | 8,4  | 9,1  | 9,9  | 10,9 | 11,9 | 12,9 | 14,1 | 15,0 |
| 600  | 7,4  | 7,0  | 6,4  | 6,1  | 5,8  | 5,5  | 5,6  | 5,6  | 5,8  | 6,1  | 6,5  | 6,8  | 7,4  | 8,1  | 8,8  | 9,9  | 10,7 | 11,8 | 12,8 |
| 620  | 8,7  | 7,9  | 7,3  | 6,7  | 6,2  | 5,6  | 5,2  | 5,4  | 5,3  | 5,3  | 5,5  | 5,9  | 6,3  | 6,6  | 7,2  | 8,0  | 8,7  | 9,5  | 10,6 |
| 640  | 10,4 | 9,5  | 8,7  | 7,8  | 7,0  | 6,5  | 5,9  | 5,6  | 5,2  | 4,9  | 5,0  | 5,0  | 5,2  | 5,5  | 5,8  | 6,4  | 7,0  | 7,6  | 8,5  |
| 660  | 12,8 | 11,5 | 10,5 | 9,6  | 8,6  | 7,7  | 6,9  | 6,3  | 5,7  | 5,4  | 5,0  | 4,8  | 4,5  | 4,7  | 4,9  | 5,1  | 5,5  | 6,0  | 6,8  |
| 680  | 15,7 | 14,2 | 13,0 | 11,9 | 10,7 | 9,6  | 8,6  | 7,6  | 6,9  | 6,2  | 5,6  | 5,1  | 4,8  | 4,6  | 4,2  | 4,2  | 4,5  | 4,6  | 5,1  |
| 700  | 18,5 | 17,3 | 16,0 | 14,3 | 13,4 | 12,1 | 11,0 | 10,0 | 8,7  | 7,8  | 6,8  | 6,3  | 5,6  | 5,0  | 4,6  | 4,2  | 4,2  | 4,0  | 4,2  |
| 720  | 21,1 | 20,2 | 18,8 | 17,7 | 16,4 | 15,3 | 13,9 | 12,5 | 11,2 | 10,3 | 9,1  | 7,9  | 7,1  | 6,2  | 5,6  | 4,8  | 4,5  | 4,2  | 3,8  |
| 740  | 24,0 | 22,8 | 21,5 | 20,6 | 19,2 | 18,1 | 16,8 | 15,5 | 14,4 | 13,0 | 11,7 | 10,5 | 9,4  | 8,4  | 7,2  | 6,5  | 5,6  | 5,0  | 4,3  |
| 760  | 25,9 | 25,2 | 24,3 | 23,0 | 21,7 | 20,7 | 19,7 | 18,5 | 17,2 | 15,9 | 14,7 | 13,5 | 12,2 | 10,8 | 9,8  | 8,9  | 7,6  | 6,7  | 5,9  |
| 780  | 27,2 | 26,1 | 26,1 | 25,2 | 24,3 | 23,3 | 22,2 | 21,2 | 20,1 | 19,0 | 17,6 | 16,3 | 15,1 | 14,0 | 12,6 | 11,6 | 10,2 | 9,2  | 8,1  |
| 800  | 28,2 | 27,3 | 27,3 | 26,7 | 25,9 | 25,1 | 24,4 | 23,4 | 22,2 | 21,3 | 20,3 | 19,2 | 18,0 | 16,7 | 15,4 | 14,3 | 13,2 | 11,9 | 10,8 |
| 820  | 28,1 | 28,0 | 27,9 | 27,7 | 27,2 | 26,5 | 25,9 | 25,1 | 24,4 | 23,3 | 22,3 | 21,6 | 20,4 | 19,4 | 18,2 | 17,2 | 15,9 | 14,6 | 13,6 |
| 840  | 28,1 | 28,1 | 27,9 | 27,9 | 27,6 | 27,3 | 27,2 | 26,6 | 25,8 | 25,0 | 24,3 | 23,5 | 22,4 | 21,6 | 20,5 | 19,4 | 18,4 | 17,3 | 16,4 |
| 860  | 27,4 | 27,7 | 27,9 | 28,0 | 27,9 | 27,7 | 27,5 | 27,1 | 26,8 | 26,4 | 25,5 | 24,8 | 24,3 | 23,3 | 22,2 | 21,5 | 20,5 | 19,6 | 18,4 |
| 880  | 26,5 | 27,0 | 27,3 | 27,5 | 27,8 | 28,0 | 27,7 | 27,5 | 27,2 | 27,0 | 26,5 | 26,0 | 25,5 | 24,7 | 24,1 | 23,2 | 22,0 | 21,4 | 20,4 |
| 900  | 25,0 | 25,7 | 26,3 | 26,9 | 27,3 | 27,5 | 27,6 | 27,8 | 27,9 | 27,6 | 27,1 | 26,7 | 26,5 | 25,7 | 25,3 | 24,6 | 23,9 | 23,0 | 22,0 |
| 920  | 23,0 | 23,9 | 24,9 | 25,7 | 26,2 | 26,9 | 27,3 | 27,5 | 27,5 | 27,6 | 27,7 | 27,5 | 27,2 | 26,7 | 26,3 | 25,7 | 25,1 | 24,3 | 23,6 |
| 940  | 20,8 | 21,9 | 23,0 | 23,9 | 24,7 | 25,7 | 26,1 | 26,7 | 27,2 | 27,4 | 27,7 | 27,7 | 27,6 | 27,5 | 27,1 | 26,6 | 26,2 | 25,6 | 25,5 |
| 960  | 17,9 | 19,5 | 20,5 | 21,7 | 22,7 | 23,9 | 24,7 | 25,4 | 26,2 | 26,6 | 27,2 | 27,5 | 27,7 | 27,7 | 27,6 | 27,4 | 27,1 | 27,0 | 26,2 |
| 980  | 15,6 | 16,8 | 17,6 | 19,3 | 20,2 | 21,4 | 22,6 | 23,7 | 24,6 | 25,3 | 25,9 | 26,8 | 27,2 | 27,5 | 27,7 | 27,8 | 27,6 | 27,5 | 27,1 |
| 1000 | 13,9 | 14,7 | 15,6 | 16,5 | 17,6 | 18,8 | 20,1 | 21,1 | 22,2 | 23,4 | 24,3 | 25,2 | 25,8 | 26,6 | 27,2 | 27,6 | 27,7 | 27,6 | 27,6 |
|      | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  | 360  |



TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 27,6 | 27,7 | 27,3 | 26,7 | 26,2 | 25,5 | 24,7 | 23,8 | 23,1 | 22,3 | 21,3 | 20,2 | 19,3 | 18,3 | 17,4 | 16,6 | 15,7 | 15,0 | 14,2 |
| 20   | 27,7 | 27,8 | 27,8 | 27,6 | 27,4 | 26,8 | 26,2 | 25,6 | 24,8 | 24,0 | 23,1 | 22,0 | 20,9 | 20,2 | 19,1 | 18,2 | 17,1 | 16,2 | 15,5 |
| 40   | 26,9 | 27,3 | 27,6 | 27,9 | 27,9 | 27,7 | 27,5 | 27,1 | 26,3 | 25,6 | 24,9 | 24,0 | 23,2 | 22,0 | 20,8 | 20,1 | 18,9 | 17,9 | 17,1 |
| 60   | 25,3 | 26,0 | 26,8 | 27,1 | 27,5 | 27,9 | 27,8 | 27,7 | 27,3 | 27,1 | 26,7 | 25,9 | 25,0 | 24,0 | 23,2 | 22,0 | 20,7 | 19,9 | 18,9 |
| 80   | 23,1 | 24,0 | 25,1 | 25,9 | 26,5 | 27,3 | 27,5 | 27,9 | 28,2 | 28,0 | 27,6 | 27,5 | 27,2 | 26,4 | 25,6 | 24,1 | 23,2 | 22,1 | 20,8 |
| 100  | 20,8 | 21,8 | 22,6 | 23,6 | 24,6 | 25,5 | 26,2 | 26,7 | 27,2 | 27,5 | 27,6 | 27,8 | 27,4 | 27,2 | 26,8 | 26,3 | 25,4 | 24,5 | 23,5 |
| 120  | 18,5 | 19,6 | 20,6 | 21,5 | 22,4 | 23,2 | 24,1 | 25,1 | 25,8 | 26,4 | 26,9 | 27,3 | 27,5 | 27,5 | 27,6 | 27,1 | 26,8 | 26,3 | 25,4 |
| 140  | 17,1 | 17,9 | 18,6 | 19,3 | 20,3 | 21,3 | 22,0 | 22,9 | 23,7 | 24,7 | 25,5 | 26,0 | 26,7 | 27,0 | 27,2 | 27,4 | 27,3 | 27,4 | 26,9 |
| 160  | 16,5 | 17,1 | 17,4 | 18,1 | 18,8 | 19,3 | 20,1 | 21,0 | 21,9 | 22,6 | 23,5 | 24,2 | 25,1 | 25,6 | 26,1 | 26,7 | 26,9 | 27,3 | 27,1 |
| 180  | 16,9 | 17,0 | 17,1 | 17,4 | 18,0 | 18,4 | 18,9 | 19,4 | 20,1 | 20,7 | 21,2 | 22,2 | 23,0 | 23,8 | 24,5 | 25,0 | 25,7 | 26,3 | 26,7 |
| 200  | 17,7 | 17,5 | 17,7 | 17,7 | 17,6 | 18,1 | 18,3 | 18,7 | 19,2 | 19,7 | 20,1 | 20,8 | 21,5 | 22,2 | 22,8 | 23,5 | 24,1 | 24,7 | 25,5 |
| 220  | 18,3 | 18,2 | 18,3 | 18,3 | 18,3 | 18,3 | 18,6 | 18,7 | 18,9 | 19,3 | 19,5 | 20,0 | 20,4 | 21,0 | 21,5 | 22,0 | 22,6 | 23,2 | 23,8 |
| 240  | 18,6 | 18,8 | 18,9 | 18,9 | 18,9 | 19,0 | 19,2 | 19,1 | 19,2 | 19,5 | 19,6 | 19,7 | 19,9 | 20,4 | 20,8 | 21,2 | 21,6 | 21,8 | 22,2 |
| 260  | 18,2 | 18,5 | 18,7 | 18,8 | 19,0 | 19,3 | 19,5 | 19,6 | 19,9 | 19,9 | 20,0 | 20,1 | 20,2 | 20,3 | 20,6 | 21,2 | 21,4 | 21,7 | 21,9 |
| 280  | 16,8 | 17,4 | 17,9 | 18,3 | 18,7 | 19,1 | 19,3 | 19,8 | 20,0 | 20,2 | 20,4 | 20,6 | 20,8 | 20,8 | 21,0 | 21,1 | 21,3 | 21,4 | 21,5 |
| 300  | 15,5 | 15,8 | 16,2 | 16,6 | 17,6 | 18,1 | 18,5 | 19,2 | 19,4 | 19,9 | 20,6 | 20,8 | 20,9 | 21,0 | 21,5 | 21,7 | 21,7 | 22,0 | 22,0 |
| 320  | 13,8 | 14,2 | 14,6 | 15,1 | 15,6 | 16,2 | 16,8 | 17,7 | 18,3 | 18,9 | 19,5 | 20,1 | 20,8 | 21,2 | 21,5 | 21,6 | 22,0 | 22,3 | 22,5 |
| 340  | 12,6 | 12,9 | 13,0 | 13,3 | 13,7 | 14,4 | 14,9 | 15,5 | 16,2 | 17,1 | 18,0 | 18,6 | 19,4 | 20,2 | 20,8 | 21,5 | 21,9 | 22,1 | 22,6 |
| 360  | 12,3 | 12,1 | 11,9 | 12,0 | 12,3 | 12,5 | 13,0 | 13,4 | 14,2 | 14,9 | 15,7 | 16,5 | 17,3 | 18,4 | 19,5 | 20,0 | 20,6 | 21,5 | 22,2 |
| 380  | 13,1 | 12,5 | 11,9 | 11,6 | 11,5 | 11,4 | 11,6 | 11,7 | 12,3 | 12,7 | 13,3 | 14,0 | 15,0 | 15,9 | 16,9 | 17,8 | 18,6 | 19,6 | 20,6 |
| 400  | 14,8 | 13,9 | 13,1 | 12,5 | 11,7 | 11,2 | 11,1 | 10,9 | 11,0 | 11,1 | 11,4 | 12,0 | 12,6 | 13,2 | 14,2 | 15,4 | 16,2 | 17,3 | 18,1 |
| 420  | 16,5 | 15,7 | 15,1 | 14,3 | 13,4 | 12,5 | 11,7 | 11,1 | 10,8 | 10,8 | 10,5 | 10,6 | 10,7 | 11,2 | 12,0 | 12,5 | 13,5 | 14,5 | 15,6 |
| 440  | 18,6 | 17,9 | 17,1 | 16,1 | 15,6 | 14,4 | 13,5 | 12,8 | 11,9 | 11,1 | 10,6 | 10,3 | 10,3 | 10,2 | 10,3 | 10,5 | 11,3 | 12,0 | 12,9 |
| 460  | 20,3 | 19,8 | 19,3 | 18,5 | 17,6 | 16,8 | 15,9 | 14,7 | 13,7 | 12,9 | 12,0 | 11,1 | 10,9 | 10,1 | 9,9  | 9,9  | 9,9  | 10,1 | 10,7 |
| 480  | 21,2 | 21,1 | 20,8 | 20,3 | 19,7 | 19,1 | 18,3 | 17,4 | 16,4 | 15,0 | 14,1 | 13,2 | 12,2 | 11,4 | 10,7 | 10,1 | 9,7  | 9,5  | 9,7  |
| 500  | 21,4 | 21,4 | 21,4 | 21,3 | 21,1 | 20,8 | 20,0 | 19,5 | 18,8 | 17,8 | 17,0 | 15,7 | 14,4 | 13,6 | 12,5 | 11,6 | 10,9 | 10,2 | 9,8  |
| 520  | 20,6 | 21,2 | 21,7 | 21,7 | 21,5 | 21,5 | 21,4 | 21,1 | 20,5 | 19,8 | 19,1 | 18,2 | 17,6 | 16,2 | 15,1 | 13,9 | 12,9 | 11,9 | 10,9 |
| 540  | 19,2 | 20,0 | 20,7 | 21,1 | 21,8 | 22,0 | 21,8 | 21,7 | 21,5 | 21,2 | 20,9 | 20,3 | 19,6 | 18,6 | 18,0 | 16,7 | 15,4 | 14,5 | 13,2 |
| 560  | 17,2 | 18,4 | 19,0 | 20,0 | 20,8 | 21,1 | 21,7 | 21,9 | 22,2 | 22,1 | 21,9 | 21,7 | 21,1 | 20,4 | 19,8 | 19,0 | 18,2 | 17,2 | 16,0 |
| 580  | 15,0 | 16,0 | 17,3 | 18,2 | 19,1 | 19,9 | 20,8 | 21,1 | 21,7 | 22,0 | 22,2 | 22,3 | 22,1 | 21,8 | 21,5 | 20,9 | 20,3 | 19,3 | 18,6 |
| 600  | 12,8 | 13,9 | 15,1 | 15,9 | 17,2 | 18,0 | 19,0 | 19,9 | 20,6 | 21,3 | 21,8 | 22,0 | 22,4 | 22,4 | 22,2 | 22,2 | 21,5 | 21,2 | 20,6 |
| 620  | 10,6 | 11,5 | 12,7 | 13,7 | 14,9 | 16,0 | 17,1 | 18,3 | 19,1 | 19,9 | 20,8 | 21,3 | 22,0 | 22,3 | 22,4 | 22,4 | 22,3 | 22,3 | 21,9 |
| 640  | 8,5  | 9,5  | 10,4 | 11,3 | 12,3 | 13,7 | 14,9 | 16,0 | 17,1 | 18,1 | 19,0 | 19,9 | 20,7 | 21,7 | 22,0 | 22,3 | 22,6 | 22,5 | 22,6 |
| 660  | 6,8  | 7,4  | 8,2  | 9,1  | 10,1 | 11,1 | 12,2 | 13,6 | 14,6 | 15,8 | 17,1 | 18,1 | 19,0 | 20,0 | 20,8 | 21,3 | 22,1 | 22,3 | 22,6 |
| 680  | 5,1  | 5,7  | 6,4  | 7,1  | 7,9  | 8,7  | 9,7  | 11,0 | 12,1 | 13,1 | 14,1 | 15,7 | 16,8 | 18,0 | 19,0 | 19,9 | 20,8 | 21,5 | 22,1 |
| 700  | 4,2  | 4,4  | 4,7  | 5,1  | 5,8  | 6,7  | 7,4  | 8,4  | 9,4  | 10,6 | 11,5 | 13,0 | 14,1 | 15,2 | 16,8 | 17,9 | 18,8 | 20,0 | 21,1 |
| 720  | 3,8  | 3,8  | 3,8  | 4,0  | 4,4  | 4,8  | 5,4  | 5,9  | 6,9  | 8,0  | 9,1  | 10,1 | 11,5 | 12,7 | 13,9 | 15,0 | 16,4 | 17,9 | 18,6 |
| 740  | 4,3  | 3,9  | 3,8  | 3,7  | 3,6  | 3,8  | 3,9  | 4,4  | 4,9  | 5,7  | 6,4  | 7,4  | 8,9  | 9,8  | 10,9 | 12,2 | 13,6 | 14,8 | 16,2 |
| 760  | 5,9  | 5,1  | 4,4  | 4,0  | 3,6  | 3,4  | 3,4  | 3,5  | 3,9  | 4,3  | 4,7  | 5,2  | 5,9  | 6,8  | 8,0  | 9,3  | 10,3 | 11,8 | 13,2 |
| 780  | 8,1  | 7,1  | 6,1  | 5,3  | 4,6  | 4,1  | 3,7  | 3,3  | 3,3  | 3,1  | 3,4  | 3,6  | 4,1  | 4,9  | 5,6  | 6,4  | 7,5  | 8,6  | 9,9  |
| 800  | 10,8 | 9,7  | 8,5  | 7,5  | 6,5  | 5,6  | 4,9  | 4,2  | 3,8  | 3,4  | 3,2  | 3,1  | 3,1  | 3,3  | 4,4  | 4,8  | 5,5  | 6,1  | 6,9  |
| 820  | 13,6 | 12,5 | 11,2 | 10,1 | 9,0  | 8,0  | 6,9  | 6,1  | 5,3  | 4,7  | 3,9  | 3,7  | 3,1  | 3,1  | 3,2  | 3,1  | 3,6  | 3,9  | 4,8  |
| 840  | 16,4 | 15,1 | 13,7 | 12,9 | 11,7 | 10,6 | 9,5  | 8,6  | 7,5  | 6,6  | 5,7  | 4,9  | 4,4  | 3,7  | 3,5  | 3,2  | 3,2  | 3,1  | 3,4  |
| 860  | 18,4 | 17,5 | 16,6 | 15,4 | 14,3 | 13,1 | 12,1 | 11,1 | 10,0 | 9,1  | 7,9  | 7,0  | 6,3  | 5,5  | 4,6  | 4,1  | 3,6  | 3,4  | 3,3  |
| 880  | 20,4 | 19,6 | 18,7 | 17,5 | 16,6 | 15,6 | 14,5 | 13,6 | 12,5 | 11,5 | 10,4 | 9,5  | 8,6  | 7,6  | 6,7  | 5,9  | 5,2  | 4,5  | 4,1  |
| 900  | 22,0 | 21,1 | 20,2 | 19,4 | 18,7 | 17,7 | 16,5 | 15,7 | 14,7 | 13,8 | 12,5 | 11,9 | 10,9 | 10,0 | 9,1  | 8,3  | 7,2  | 6,5  | 5,8  |
| 920  | 23,6 | 22,7 | 21,7 | 21,1 | 20,1 | 19,4 | 18,4 | 17,5 | 16,7 | 15,6 | 14,8 | 13,9 | 13,1 | 12,1 | 11,2 | 10,3 | 9,6  | 8,7  | 7,7  |
| 940  | 25,5 | 24,1 | 23,4 | 22,4 | 21,4 | 20,6 | 19,9 | 19,0 | 18,2 | 17,3 | 16,6 | 15,7 | 14,8 | 14,1 | 13,1 | 12,4 | 11,5 | 10,8 | 9,8  |
| 960  | 26,2 | 25,6 | 24,7 | 24,1 | 23,3 | 22,3 | 21,3 | 20,6 | 19,0 | 18,9 | 17,9 | 17,1 | 16,3 | 15,4 | 14,6 | 14,0 | 13,2 | 12,6 | 11,7 |
| 980  | 27,1 | 26,7 | 26,3 | 25,5 | 24,9 | 23,8 | 23,4 | 22,2 | 21,0 | 20,4 | 19,4 | 18,6 | 17,7 | 16,8 | 16,2 | 15,2 | 14,5 | 13,9 | 13,1 |
| 1000 | 27,6 | 27,7 | 27,3 | 26,7 | 26,2 | 25,5 | 24,7 | 23,8 | 23,1 | 22,3 | 21,3 | 20,2 | 19,3 | 18,3 | 17,4 | 16,6 | 15,7 | 15,0 | 14,2 |
|      | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  |



## SOLAR TABLES.

(47)

TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  | 710  | 720  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 14.2 | 13.6 | 13.1 | 12.3 | 11.7 | 11.3 | 10.8 | 10.2 | 9.5  | 9.1  | 8.4  | 7.9  | 7.4  | 7.0  | 6.6  | 6.3  | 5.9  | 5.5  | 5.4  |
| 20   | 15.5 | 14.7 | 14.1 | 13.3 | 12.7 | 12.2 | 11.5 | 11.3 | 10.7 | 10.4 | 9.8  | 9.4  | 8.9  | 8.5  | 7.9  | 7.7  | 7.3  | 6.7  | 6.6  |
| 40   | 17.1 | 15.9 | 15.1 | 14.4 | 13.7 | 13.0 | 12.3 | 12.0 | 11.5 | 11.0 | 10.7 | 10.3 | 10.0 | 9.6  | 9.3  | 8.9  | 8.5  | 8.1  | 7.8  |
| 60   | 18.9 | 17.7 | 16.8 | 15.8 | 14.9 | 14.0 | 13.3 | 12.7 | 12.1 | 11.6 | 11.2 | 10.9 | 10.5 | 10.2 | 10.0 | 9.8  | 9.5  | 9.2  | 8.9  |
| 80   | 20.8 | 20.0 | 18.7 | 17.9 | 16.6 | 15.6 | 14.8 | 13.6 | 12.9 | 12.4 | 11.8 | 11.3 | 10.9 | 10.7 | 10.3 | 9.9  | 9.8  | 9.8  | 9.6  |
| 100  | 23.5 | 22.2 | 20.9 | 20.0 | 18.6 | 17.6 | 16.6 | 15.4 | 14.4 | 13.4 | 12.6 | 12.1 | 11.5 | 11.0 | 10.6 | 10.2 | 10.0 | 9.9  | 9.6  |
| 120  | 25.4 | 24.6 | 23.7 | 22.4 | 21.0 | 20.1 | 18.8 | 17.7 | 16.4 | 15.3 | 14.3 | 13.2 | 12.4 | 11.6 | 11.2 | 10.6 | 10.1 | 10.1 | 9.6  |
| 140  | 26.9 | 26.2 | 25.4 | 24.6 | 23.9 | 22.6 | 21.1 | 20.1 | 18.9 | 17.7 | 16.5 | 15.2 | 14.2 | 13.0 | 12.3 | 11.6 | 11.1 | 10.3 | 9.9  |
| 160  | 27.1 | 27.0 | 26.9 | 26.4 | 25.5 | 24.7 | 23.9 | 22.9 | 21.5 | 20.4 | 19.2 | 17.9 | 16.6 | 15.3 | 14.1 | 13.1 | 12.0 | 11.2 | 10.5 |
| 180  | 26.7 | 26.8 | 27.0 | 26.8 | 26.6 | 26.2 | 25.6 | 24.8 | 23.9 | 22.9 | 21.6 | 20.6 | 19.1 | 18.0 | 16.7 | 15.5 | 14.3 | 12.9 | 12.0 |
| 200  | 25.5 | 25.8 | 26.3 | 26.6 | 26.6 | 26.6 | 26.4 | 26.0 | 25.6 | 24.9 | 24.0 | 22.9 | 21.7 | 20.8 | 19.3 | 18.1 | 16.9 | 15.5 | 14.4 |
| 220  | 23.8 | 24.5 | 25.0 | 25.4 | 25.8 | 26.0 | 26.2 | 26.3 | 26.1 | 25.8 | 25.3 | 24.9 | 24.1 | 23.1 | 21.2 | 20.9 | 19.7 | 18.3 | 17.1 |
| 240  | 22.2 | 22.6 | 23.1 | 23.3 | 23.9 | 24.2 | 24.6 | 25.1 | 25.1 | 25.3 | 25.2 | 25.1 | 24.7 | 24.3 | 24.0 | 23.0 | 21.9 | 21.3 | 20.2 |
| 260  | 21.9 | 22.2 | 22.3 | 22.7 | 23.1 | 23.3 | 23.6 | 23.9 | 24.2 | 24.5 | 24.7 | 24.8 | 24.9 | 24.6 | 24.3 | 23.8 | 23.4 | 22.9 | 21.6 |
| 280  | 21.5 | 21.8 | 22.0 | 22.2 | 22.7 | 23.0 | 23.3 | 23.6 | 23.9 | 24.2 | 24.7 | 24.8 | 25.0 | 24.9 | 24.9 | 24.8 | 24.4 | 24.0 | 23.5 |
| 300  | 22.0 | 22.1 | 22.1 | 22.2 | 22.4 | 22.6 | 22.8 | 23.0 | 23.3 | 23.4 | 23.8 | 24.0 | 24.1 | 24.5 | 24.5 | 24.6 | 24.5 | 24.4 | 24.0 |
| 320  | 22.5 | 22.5 | 22.6 | 22.7 | 22.8 | 22.8 | 22.9 | 23.0 | 23.1 | 23.2 | 23.4 | 23.3 | 23.6 | 23.8 | 24.0 | 23.9 | 24.2 | 24.2 | 24.2 |
| 340  | 22.6 | 23.0 | 23.2 | 23.4 | 23.3 | 23.4 | 23.5 | 23.5 | 23.5 | 23.4 | 23.5 | 23.6 | 23.6 | 23.5 | 23.5 | 23.6 | 23.9 | 23.8 | 23.8 |
| 360  | 22.2 | 22.7 | 23.0 | 23.7 | 23.7 | 24.0 | 24.2 | 24.2 | 24.3 | 24.2 | 24.2 | 24.0 | 23.7 | 23.9 | 24.0 | 23.7 | 23.7 | 23.6 | 23.6 |
| 380  | 20.6 | 21.5 | 22.3 | 22.9 | 23.5 | 23.9 | 24.5 | 24.6 | 24.8 | 25.1 | 24.8 | 24.9 | 25.0 | 24.9 | 24.6 | 24.5 | 24.5 | 24.3 | 24.0 |
| 400  | 18.1 | 19.2 | 20.3 | 21.4 | 22.4 | 23.0 | 23.7 | 24.3 | 24.7 | 25.0 | 25.4 | 25.7 | 25.7 | 25.5 | 25.5 | 25.4 | 25.2 | 24.8 | 24.6 |
| 420  | 15.6 | 16.7 | 17.7 | 18.7 | 20.1 | 21.0 | 22.0 | 23.0 | 23.7 | 24.6 | 25.0 | 25.7 | 26.1 | 26.2 | 26.3 | 26.5 | 26.2 | 26.0 | 25.9 |
| 440  | 12.9 | 13.6 | 14.7 | 16.0 | 17.0 | 18.3 | 19.5 | 20.8 | 21.7 | 22.7 | 23.7 | 24.6 | 25.4 | 26.0 | 26.5 | 26.7 | 26.9 | 27.0 | 26.9 |
| 460  | 10.7 | 11.3 | 12.2 | 13.0 | 14.0 | 15.1 | 16.5 | 17.8 | 19.0 | 20.1 | 21.4 | 22.3 | 23.5 | 24.8 | 25.4 | 26.1 | 26.7 | 27.1 | 27.3 |
| 480  | 9.7  | 9.9  | 10.2 | 10.7 | 11.7 | 12.5 | 13.4 | 14.5 | 15.6 | 17.0 | 18.5 | 19.7 | 20.9 | 22.1 | 23.2 | 24.4 | 25.4 | 26.2 | 26.8 |
| 500  | 9.8  | 9.4  | 9.3  | 9.6  | 9.8  | 10.2 | 11.1 | 12.0 | 13.0 | 13.8 | 14.9 | 16.3 | 17.9 | 19.1 | 20.5 | 21.6 | 22.9 | 24.2 | 25.1 |
| 520  | 10.9 | 10.3 | 9.8  | 9.5  | 9.2  | 9.2  | 9.6  | 9.8  | 10.5 | 11.5 | 12.4 | 13.4 | 14.4 | 15.5 | 17.1 | 18.4 | 19.9 | 21.2 | 22.3 |
| 540  | 12.2 | 12.3 | 11.3 | 10.5 | 10.1 | 9.5  | 9.3  | 9.0  | 9.2  | 9.6  | 10.3 | 11.0 | 11.9 | 12.8 | 13.9 | 15.1 | 16.5 | 17.9 | 19.4 |
| 560  | 16.0 | 14.8 | 13.7 | 12.7 | 11.7 | 10.9 | 10.2 | 9.7  | 9.3  | 9.1  | 9.1  | 9.4  | 10.0 | 10.6 | 11.5 | 12.4 | 13.3 | 14.5 | 16.0 |
| 580  | 18.6 | 17.3 | 16.5 | 15.4 | 14.0 | 12.9 | 12.2 | 11.3 | 10.4 | 9.9  | 9.4  | 9.0  | 9.2  | 9.3  | 9.7  | 10.4 | 11.0 | 12.0 | 12.7 |
| 600  | 20.6 | 19.5 | 19.1 | 17.7 | 16.8 | 15.8 | 14.4 | 13.3 | 12.5 | 11.6 | 10.8 | 10.1 | 9.6  | 9.4  | 9.1  | 9.3  | 9.9  | 10.0 | 10.8 |
| 620  | 21.9 | 21.5 | 20.9 | 20.0 | 19.3 | 18.0 | 16.9 | 16.1 | 14.9 | 13.7 | 12.7 | 12.0 | 11.1 | 10.4 | 9.8  | 9.5  | 9.5  | 9.3  | 9.7  |
| 640  | 22.6 | 22.4 | 22.0 | 21.6 | 21.1 | 20.3 | 19.6 | 18.4 | 17.4 | 16.3 | 15.2 | 14.2 | 13.1 | 12.1 | 11.3 | 10.6 | 10.1 | 9.6  | 9.5  |
| 660  | 22.6 | 22.8 | 22.7 | 22.6 | 22.2 | 21.8 | 21.3 | 20.6 | 19.9 | 18.7 | 17.8 | 16.7 | 15.6 | 14.4 | 13.4 | 12.4 | 11.7 | 11.0 | 10.2 |
| 680  | 22.1 | 22.6 | 22.7 | 23.0 | 23.0 | 22.8 | 22.4 | 22.0 | 21.5 | 20.8 | 20.2 | 19.0 | 18.1 | 17.0 | 15.8 | 14.7 | 13.7 | 12.8 | 12.0 |
| 700  | 22.1 | 21.5 | 22.2 | 22.6 | 22.9 | 23.0 | 23.2 | 23.2 | 22.6 | 22.2 | 21.7 | 21.0 | 20.5 | 19.3 | 18.3 | 17.3 | 16.0 | 15.0 | 14.1 |
| 720  | 18.6 | 19.7 | 20.8 | 21.6 | 22.3 | 22.7 | 23.0 | 23.3 | 23.2 | 23.4 | 23.1 | 22.4 | 21.9 | 21.3 | 20.8 | 19.5 | 18.5 | 17.6 | 16.4 |
| 740  | 16.2 | 17.5 | 18.7 | 19.5 | 20.6 | 21.6 | 22.3 | 22.8 | 23.2 | 23.4 | 23.6 | 23.6 | 23.3 | 22.8 | 22.2 | 21.6 | 21.1 | 19.9 | 18.8 |
| 760  | 13.2 | 14.5 | 15.9 | 17.4 | 18.2 | 19.5 | 20.5 | 21.4 | 22.5 | 22.8 | 23.3 | 23.7 | 23.6 | 23.8 | 23.5 | 23.3 | 22.7 | 21.8 | 21.3 |
| 780  | 9.9  | 11.1 | 12.6 | 14.0 | 15.6 | 16.8 | 18.1 | 19.2 | 20.4 | 21.3 | 22.3 | 23.0 | 23.3 | 23.7 | 23.8 | 24.0 | 23.8 | 23.5 | 23.0 |
| 800  | 6.9  | 7.9  | 9.4  | 10.7 | 12.1 | 13.4 | 14.9 | 16.4 | 17.7 | 19.1 | 20.1 | 21.2 | 21.1 | 22.9 | 23.4 | 23.8 | 24.1 | 24.2 | 23.9 |
| 820  | 4.8  | 5.7  | 6.5  | 7.5  | 8.7  | 10.0 | 11.5 | 12.9 | 14.3 | 15.8 | 17.8 | 18.7 | 20.0 | 20.9 | 22.0 | 22.7 | 23.5 | 23.9 | 24.0 |
| 840  | 3.4  | 3.7  | 4.1  | 5.0  | 6.2  | 7.0  | 8.2  | 9.5  | 10.8 | 12.2 | 13.8 | 15.2 | 16.6 | 18.1 | 19.5 | 20.6 | 21.7 | 22.6 | 23.3 |
| 860  | 3.3  | 3.2  | 3.4  | 3.4  | 4.0  | 4.5  | 5.6  | 6.8  | 7.7  | 8.8  | 10.2 | 11.5 | 13.2 | 14.7 | 16.0 | 17.4 | 19.0 | 20.2 | 21.3 |
| 880  | 4.1  | 3.8  | 3.5  | 3.4  | 3.4  | 3.6  | 3.9  | 4.4  | 5.2  | 6.1  | 7.2  | 8.2  | 9.7  | 10.9 | 12.5 | 14.1 | 15.4 | 16.8 | 18.2 |
| 900  | 5.8  | 5.1  | 4.4  | 4.2  | 3.8  | 3.6  | 3.6  | 3.6  | 3.9  | 4.2  | 5.0  | 5.7  | 6.6  | 7.8  | 9.1  | 10.3 | 11.8 | 13.4 | 14.8 |
| 920  | 7.7  | 6.9  | 6.3  | 5.8  | 5.1  | 4.6  | 4.2  | 3.8  | 3.9  | 3.9  | 4.0  | 4.3  | 4.7  | 5.4  | 6.4  | 7.3  | 8.6  | 9.8  | 11.2 |
| 940  | 9.8  | 9.1  | 8.3  | 7.6  | 6.8  | 6.3  | 5.9  | 5.1  | 4.6  | 4.4  | 4.2  | 4.3  | 4.3  | 4.3  | 4.9  | 5.3  | 6.3  | 7.0  | 8.0  |
| 960  | 11.7 | 11.0 | 10.1 | 9.6  | 8.8  | 8.1  | 7.5  | 6.9  | 6.3  | 5.8  | 5.3  | 4.7  | 4.7  | 4.6  | 4.6  | 4.6  | 4.9  | 5.4  | 6.0  |
| 980  | 13.1 | 12.5 | 11.8 | 11.2 | 10.5 | 9.7  | 9.3  | 8.7  | 7.9  | 7.4  | 6.8  | 6.4  | 6.0  | 5.6  | 5.2  | 5.0  | 4.9  | 5.1  | 5.1  |
| 1000 | 14.2 | 13.6 | 13.1 | 12.3 | 11.7 | 11.3 | 10.8 | 10.2 | 9.5  | 9.1  | 8.4  | 7.9  | 7.4  | 7.0  | 6.6  | 6.3  | 5.9  | 5.5  | 5.4  |
|      | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  | 710  | 720  |



TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  | 900  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 5,4  | 5,5  | 5,8  | 6,0  | 6,3  | 6,8  | 7,6  | 8,4  | 9,3  | 10,4 | 11,7 | 12,9 | 14,3 | 15,5 | 16,9 | 18,2 | 19,2 | 20,2 | 21,4 |
| 20   | 6,6  | 6,3  | 6,0  | 6,1  | 6,1  | 6,2  | 6,5  | 6,9  | 7,7  | 8,3  | 9,4  | 10,2 | 11,2 | 12,4 | 13,6 | 14,9 | 16,2 | 17,3 | 18,6 |
| 40   | 7,8  | 7,4  | 7,1  | 7,0  | 6,7  | 6,6  | 6,8  | 6,8  | 6,9  | 7,2  | 7,7  | 8,5  | 9,3  | 10,2 | 10,9 | 11,8 | 13,3 | 14,2 | 15,5 |
| 60   | 8,9  | 8,8  | 8,3  | 8,1  | 7,8  | 7,6  | 7,4  | 7,4  | 7,3  | 7,4  | 7,4  | 7,7  | 8,3  | 8,7  | 9,5  | 10,1 | 10,8 | 11,6 | 12,7 |
| 80   | 9,6  | 9,5  | 9,1  | 9,1  | 9,0  | 8,8  | 8,4  | 8,2  | 8,1  | 8,1  | 8,0  | 8,1  | 8,2  | 8,3  | 8,6  | 8,9  | 9,6  | 10,3 | 10,7 |
| 100  | 9,6  | 9,5  | 9,6  | 9,5  | 9,5  | 9,3  | 9,3  | 9,2  | 9,2  | 9,0  | 8,7  | 8,7  | 8,7  | 8,7  | 8,9  | 9,0  | 9,1  | 9,4  | 9,9  |
| 120  | 9,6  | 9,6  | 9,5  | 9,3  | 9,4  | 9,6  | 9,6  | 9,5  | 9,5  | 9,6  | 9,6  | 9,6  | 9,6  | 9,5  | 9,3  | 9,6  | 9,6  | 9,7  | 9,9  |
| 140  | 9,9  | 9,5  | 9,6  | 9,4  | 9,3  | 9,3  | 9,0  | 9,3  | 9,5  | 9,8  | 9,7  | 9,8  | 10,0 | 10,2 | 10,1 | 10,2 | 10,1 | 10,3 | 10,4 |
| 160  | 10,5 | 9,9  | 9,5  | 9,1  | 8,9  | 9,0  | 8,9  | 9,0  | 9,0  | 9,0  | 9,5  | 9,6  | 9,9  | 10,0 | 10,2 | 10,4 | 10,6 | 11,0 | 11,0 |
| 180  | 12,0 | 11,0 | 10,1 | 9,7  | 9,1  | 8,8  | 8,7  | 8,3  | 8,5  | 8,7  | 8,8  | 9,0  | 9,1  | 9,6  | 9,9  | 10,1 | 10,4 | 10,7 | 11,0 |
| 200  | 14,4 | 13,3 | 12,0 | 11,0 | 10,1 | 9,4  | 8,9  | 8,5  | 8,2  | 8,0  | 8,0  | 8,3  | 8,5  | 8,8  | 9,1  | 9,5  | 9,7  | 10,0 | 10,5 |
| 220  | 17,1 | 15,7 | 14,6 | 13,2 | 12,0 | 10,9 | 10,2 | 9,2  | 8,7  | 8,3  | 7,9  | 7,7  | 7,7  | 7,7  | 8,1  | 8,4  | 8,8  | 9,2  | 9,7  |
| 240  | 20,2 | 19,1 | 17,8 | 16,5 | 14,5 | 13,4 | 12,2 | 11,1 | 10,0 | 9,4  | 8,4  | 8,0  | 7,7  | 7,3  | 7,4  | 7,4  | 7,7  | 8,0  | 8,4  |
| 260  | 21,6 | 21,1 | 20,1 | 19,2 | 17,3 | 15,9 | 14,6 | 13,4 | 12,4 | 11,3 | 10,1 | 9,1  | 8,6  | 7,9  | 7,4  | 7,2  | 7,1  | 7,1  | 7,3  |
| 280  | 23,5 | 22,7 | 21,6 | 21,0 | 19,8 | 18,8 | 17,3 | 16,1 | 15,0 | 13,5 | 12,5 | 11,5 | 10,2 | 9,2  | 8,3  | 7,9  | 7,4  | 7,1  | 7,0  |
| 300  | 24,0 | 23,4 | 23,2 | 22,4 | 21,4 | 20,5 | 19,8 | 18,7 | 17,5 | 16,1 | 15,0 | 13,7 | 12,4 | 11,4 | 10,4 | 9,3  | 8,5  | 7,8  | 7,4  |
| 320  | 24,2 | 23,9 | 23,5 | 23,1 | 22,7 | 22,2 | 21,2 | 20,6 | 19,6 | 18,6 | 17,5 | 16,3 | 15,1 | 13,9 | 12,5 | 11,4 | 10,5 | 9,7  | 8,6  |
| 340  | 23,8 | 23,9 | 23,7 | 23,5 | 23,2 | 22,8 | 22,3 | 21,4 | 20,9 | 20,5 | 19,2 | 18,6 | 17,4 | 16,4 | 15,2 | 13,9 | 12,7 | 11,6 | 10,6 |
| 360  | 23,6 | 23,6 | 23,6 | 23,3 | 23,3 | 23,1 | 22,9 | 22,4 | 22,0 | 21,4 | 20,4 | 19,9 | 18,9 | 18,1 | 17,4 | 16,3 | 15,1 | 13,8 | 12,8 |
| 380  | 24,0 | 24,0 | 23,7 | 23,5 | 23,3 | 23,1 | 23,1 | 22,7 | 22,4 | 22,2 | 21,6 | 20,8 | 20,0 | 19,6 | 18,8 | 17,7 | 16,9 | 16,0 | 15,1 |
| 400  | 24,6 | 24,4 | 24,4 | 24,0 | 23,8 | 23,4 | 23,2 | 23,0 | 22,8 | 22,4 | 22,1 | 21,6 | 21,3 | 20,6 | 19,6 | 19,4 | 18,4 | 17,6 | 16,5 |
| 420  | 25,9 | 25,6 | 25,2 | 24,8 | 24,7 | 24,3 | 23,9 | 23,6 | 23,3 | 22,9 | 22,7 | 22,3 | 21,7 | 21,1 | 20,8 | 20,3 | 19,3 | 18,9 | 18,2 |
| 440  | 26,9 | 26,6 | 26,4 | 26,2 | 25,9 | 25,5 | 25,2 | 24,9 | 24,5 | 23,8 | 23,4 | 23,0 | 22,8 | 22,1 | 21,6 | 20,8 | 20,6 | 19,7 | 19,0 |
| 460  | 27,3 | 27,6 | 27,6 | 27,4 | 27,0 | 26,9 | 26,5 | 26,1 | 25,6 | 25,0 | 24,6 | 24,2 | 23,7 | 23,3 | 22,7 | 22,0 | 21,6 | 20,9 | 20,2 |
| 480  | 26,8 | 27,4 | 27,6 | 28,0 | 28,1 | 28,2 | 27,7 | 27,4 | 27,3 | 26,6 | 26,2 | 25,7 | 25,1 | 24,4 | 23,9 | 23,3 | 22,8 | 22,0 | 21,4 |
| 500  | 25,1 | 26,1 | 26,8 | 27,5 | 28,1 | 28,2 | 28,6 | 28,5 | 28,4 | 28,3 | 27,6 | 27,2 | 26,7 | 26,3 | 25,7 | 24,9 | 24,3 | 23,6 | 23,0 |
| 520  | 22,3 | 23,9 | 24,8 | 25,9 | 26,8 | 27,5 | 28,1 | 28,5 | 28,7 | 29,0 | 28,8 | 28,6 | 28,4 | 27,8 | 27,3 | 26,8 | 26,3 | 25,6 | 24,7 |
| 540  | 19,4 | 20,7 | 22,1 | 23,4 | 24,6 | 25,6 | 26,5 | 27,4 | 28,0 | 28,7 | 28,9 | 29,1 | 29,2 | 29,2 | 28,9 | 28,5 | 27,8 | 27,4 | 26,8 |
| 560  | 16,0 | 17,3 | 18,6 | 19,9 | 21,4 | 22,9 | 24,1 | 25,5 | 26,4 | 27,3 | 28,2 | 28,6 | 29,2 | 29,3 | 29,5 | 29,6 | 29,3 | 29,1 | 28,8 |
| 580  | 12,7 | 14,1 | 15,5 | 16,8 | 18,0 | 19,3 | 20,9 | 22,2 | 23,5 | 24,9 | 26,1 | 27,0 | 27,8 | 28,6 | 29,0 | 29,4 | 29,6 | 29,8 | 29,8 |
| 600  | 10,8 | 11,6 | 12,7 | 13,6 | 14,9 | 16,2 | 17,5 | 18,7 | 20,2 | 21,8 | 23,0 | 24,4 | 25,5 | 26,7 | 27,6 | 28,4 | 28,9 | 29,2 | 29,6 |
| 620  | 9,7  | 10,0 | 10,5 | 10,7 | 12,2 | 13,2 | 14,4 | 15,6 | 17,0 | 18,3 | 19,6 | 21,2 | 22,6 | 23,8 | 25,0 | 26,2 | 27,1 | 27,9 | 28,8 |
| 640  | 9,5  | 9,4  | 9,6  | 10,1 | 10,4 | 11,1 | 12,0 | 13,0 | 14,0 | 15,2 | 16,5 | 17,9 | 19,2 | 20,6 | 21,6 | 23,3 | 24,6 | 25,2 | 26,6 |
| 660  | 10,2 | 10,0 | 9,7  | 9,5  | 9,5  | 9,9  | 10,4 | 11,0 | 11,7 | 12,7 | 13,8 | 14,9 | 16,2 | 17,5 | 18,8 | 20,2 | 21,1 | 22,9 | 24,0 |
| 680  | 12,0 | 11,2 | 10,5 | 10,0 | 9,7  | 9,5  | 9,6  | 10,0 | 10,4 | 11,0 | 11,6 | 12,5 | 13,8 | 14,7 | 15,8 | 16,9 | 18,4 | 19,9 | 20,6 |
| 700  | 14,1 | 13,1 | 12,3 | 11,3 | 10,7 | 10,1 | 9,7  | 9,7  | 9,9  | 9,9  | 10,4 | 10,9 | 11,5 | 12,3 | 13,4 | 14,6 | 15,6 | 16,7 | 18,0 |
| 720  | 16,4 | 15,3 | 14,4 | 13,3 | 12,2 | 11,6 | 10,9 | 10,2 | 10,1 | 9,9  | 10,0 | 10,1 | 10,4 | 11,0 | 11,4 | 12,3 | 13,3 | 14,3 | 15,6 |
| 740  | 18,8 | 17,7 | 16,7 | 15,6 | 14,4 | 13,5 | 12,4 | 11,5 | 11,1 | 10,7 | 10,1 | 10,0 | 10,3 | 10,4 | 10,5 | 11,0 | 11,4 | 12,2 | 13,3 |
| 760  | 21,3 | 20,1 | 19,2 | 18,1 | 16,6 | 15,6 | 14,7 | 13,6 | 12,8 | 11,9 | 11,3 | 10,7 | 10,3 | 10,0 | 10,2 | 10,3 | 10,7 | 11,0 | 11,5 |
| 780  | 23,0 | 22,3 | 21,5 | 20,5 | 19,4 | 18,4 | 17,2 | 15,8 | 14,9 | 14,0 | 13,0 | 12,2 | 11,3 | 10,8 | 10,6 | 10,2 | 10,2 | 10,5 | 10,7 |
| 800  | 23,9 | 23,9 | 23,4 | 22,6 | 21,9 | 20,7 | 19,8 | 18,8 | 17,5 | 16,2 | 15,1 | 14,2 | 13,4 | 12,5 | 11,7 | 11,0 | 10,6 | 10,3 | 10,3 |
| 820  | 24,0 | 24,5 | 24,2 | 23,9 | 23,3 | 22,6 | 22,3 | 21,3 | 20,3 | 19,4 | 18,3 | 17,3 | 16,2 | 15,2 | 14,4 | 13,5 | 12,5 | 11,9 | 11,4 |
| 840  | 23,3 | 24,0 | 24,3 | 24,5 | 24,4 | 24,3 | 23,8 | 23,4 | 22,7 | 21,7 | 20,8 | 19,6 | 18,3 | 17,1 | 16,2 | 14,9 | 14,1 | 13,0 | 12,4 |
| 860  | 21,3 | 22,3 | 23,3 | 23,9 | 24,2 | 24,7 | 24,5 | 24,5 | 24,3 | 23,6 | 23,1 | 21,9 | 21,0 | 20,2 | 18,7 | 17,7 | 16,6 | 15,4 | 14,3 |
| 880  | 18,2 | 19,7 | 20,9 | 22,0 | 22,8 | 23,8 | 24,1 | 24,6 | 24,8 | 24,7 | 24,5 | 24,0 | 23,5 | 22,4 | 21,3 | 20,4 | 19,3 | 18,0 | 17,0 |
| 900  | 14,8 | 16,1 | 17,6 | 19,0 | 20,6 | 21,5 | 22,5 | 23,2 | 24,1 | 24,5 | 24,2 | 24,8 | 24,5 | 24,2 | 23,8 | 22,7 | 21,9 | 20,9 | 19,7 |
| 920  | 11,2 | 12,6 | 14,0 | 15,5 | 17,0 | 18,4 | 19,9 | 21,0 | 22,0 | 22,9 | 23,5 | 24,5 | 24,5 | 24,8 | 24,7 | 24,3 | 24,1 | 23,2 | 22,3 |
| 940  | 8,0  | 9,3  | 10,7 | 12,0 | 13,3 | 14,8 | 16,4 | 17,6 | 19,1 | 20,4 | 21,4 | 22,4 | 23,2 | 24,0 | 24,5 | 24,6 | 24,5 | 24,5 | 24,2 |
| 960  | 6,0  | 6,9  | 7,8  | 8,6  | 10,2 | 11,5 | 12,7 | 14,1 | 15,6 | 16,9 | 18,5 | 19,5 | 20,7 | 21,9 | 22,8 | 23,6 | 24,0 | 24,5 | 24,5 |
| 980  | 5,1  | 5,5  | 6,0  | 6,7  | 7,7  | 8,5  | 9,7  | 10,9 | 12,2 | 13,6 | 14,8 | 16,1 | 17,6 | 18,7 | 20,1 | 21,2 | 22,2 | 23,1 | 23,6 |
| 1000 | 5,4  | 5,5  | 5,8  | 5,8  | 6,3  | 6,8  | 7,6  | 8,4  | 9,3  | 10,5 | 11,7 | 12,9 | 14,3 | 15,5 | 16,9 | 18,2 | 19,2 | 20,2 | 21,4 |
|      | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  | 900  |



TABLE XI.

Perturbations produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 21,4 | 22,5 | 23,0 | 23,5 | 24,0 | 24,2 | 24,2 | 23,7 | 23,1 | 22,5 | 21,6 |
| 20   | 18,6 | 19,6 | 20,5 | 21,5 | 22,4 | 23,1 | 23,6 | 23,7 | 24,0 | 23,4 | 23,1 |
| 40   | 15,5 | 16,6 | 17,8 | 18,8 | 19,7 | 20,7 | 21,6 | 22,4 | 22,9 | 23,5 | 23,5 |
| 60   | 12,7 | 13,8 | 14,9 | 15,9 | 17,0 | 18,1 | 19,1 | 20,1 | 20,7 | 21,5 | 22,2 |
| 80   | 10,7 | 11,6 | 12,5 | 13,3 | 14,5 | 15,2 | 16,2 | 17,3 | 18,4 | 19,0 | 20,0 |
| 100  | 9,9  | 10,4 | 11,0 | 11,7 | 12,4 | 12,9 | 14,0 | 14,8 | 15,6 | 16,5 | 17,6 |
| 120  | 9,9  | 9,8  | 10,4 | 10,9 | 11,3 | 11,8 | 12,3 | 12,9 | 13,7 | 14,3 | 15,3 |
| 140  | 10,4 | 10,5 | 10,5 | 10,6 | 10,9 | 11,4 | 11,5 | 12,0 | 12,6 | 12,8 | 13,6 |
| 160  | 11,0 | 10,9 | 11,0 | 11,3 | 11,3 | 11,3 | 11,6 | 11,8 | 12,1 | 12,3 | 12,7 |
| 180  | 11,0 | 11,3 | 11,5 | 11,7 | 11,7 | 11,9 | 12,2 | 12,2 | 12,3 | 12,5 | 12,7 |
| 200  | 10,5 | 11,0 | 11,2 | 11,6 | 12,0 | 12,2 | 12,4 | 12,7 | 12,8 | 13,1 | 13,2 |
| 220  | 9,7  | 10,1 | 10,6 | 11,0 | 11,4 | 11,8 | 12,3 | 12,7 | 13,0 | 13,3 | 13,5 |
| 240  | 8,4  | 9,0  | 9,6  | 10,0 | 10,5 | 11,0 | 11,5 | 12,1 | 12,4 | 13,1 | 13,6 |
| 260  | 7,3  | 7,6  | 8,1  | 8,5  | 9,3  | 10,0 | 10,4 | 11,0 | 11,5 | 12,2 | 12,8 |
| 280  | 7,0  | 6,9  | 7,0  | 7,3  | 7,7  | 8,5  | 8,8  | 9,6  | 10,4 | 10,7 | 11,5 |
| 300  | 7,4  | 6,9  | 6,7  | 6,8  | 6,8  | 7,0  | 7,5  | 7,9  | 8,6  | 9,0  | 10,1 |
| 320  | 8,6  | 7,8  | 7,4  | 7,0  | 6,6  | 6,5  | 6,7  | 6,8  | 7,3  | 7,8  | 8,3  |
| 340  | 10,6 | 9,7  | 8,7  | 8,0  | 7,3  | 6,8  | 6,6  | 6,4  | 6,6  | 6,7  | 6,9  |
| 360  | 12,8 | 11,7 | 10,6 | 9,8  | 8,8  | 8,0  | 7,4  | 6,9  | 6,5  | 6,5  | 6,5  |
| 380  | 15,1 | 13,9 | 12,7 | 11,8 | 10,8 | 9,8  | 8,9  | 8,2  | 7,5  | 6,9  | 6,8  |
| 400  | 16,5 | 15,7 | 14,8 | 13,7 | 12,8 | 11,8 | 10,9 | 10,0 | 9,0  | 8,3  | 7,5  |
| 420  | 18,2 | 17,2 | 16,3 | 15,3 | 14,5 | 13,7 | 12,6 | 11,6 | 10,7 | 9,9  | 9,1  |
| 440  | 19,0 | 18,6 | 17,7 | 16,6 | 15,9 | 15,1 | 14,2 | 13,3 | 12,5 | 11,6 | 10,6 |
| 460  | 20,2 | 19,5 | 18,5 | 18,1 | 17,3 | 16,7 | 15,7 | 14,8 | 13,9 | 13,0 | 12,1 |
| 480  | 21,4 | 20,9 | 20,2 | 19,3 | 18,3 | 17,7 | 16,9 | 16,3 | 15,5 | 14,5 | 13,6 |
| 500  | 23,0 | 22,3 | 21,4 | 20,7 | 20,3 | 19,1 | 18,1 | 17,6 | 16,6 | 15,8 | 15,1 |
| 520  | 24,7 | 23,9 | 23,3 | 22,6 | 21,8 | 20,8 | 20,1 | 19,2 | 18,1 | 17,4 | 16,5 |
| 540  | 26,8 | 26,1 | 25,3 | 24,4 | 23,7 | 23,0 | 22,0 | 21,0 | 20,2 | 19,2 | 18,1 |
| 560  | 28,8 | 28,0 | 27,4 | 26,9 | 26,1 | 25,1 | 24,3 | 23,5 | 22,6 | 21,5 | 20,6 |
| 580  | 29,8 | 29,3 | 29,0 | 28,7 | 27,9 | 27,3 | 26,6 | 25,7 | 24,9 | 23,8 | 23,0 |
| 600  | 29,6 | 29,9 | 29,9 | 29,8 | 29,3 | 29,0 | 28,5 | 27,8 | 27,0 | 26,3 | 25,4 |
| 620  | 28,8 | 29,3 | 29,6 | 29,8 | 30,1 | 29,8 | 29,6 | 29,2 | 28,8 | 28,2 | 27,4 |
| 640  | 26,6 | 27,8 | 28,3 | 28,9 | 29,4 | 29,7 | 29,9 | 30,0 | 29,9 | 29,5 | 29,5 |
| 660  | 24,0 | 25,1 | 26,2 | 27,1 | 28,2 | 28,8 | 29,2 | 29,5 | 29,7 | 29,8 | 29,9 |
| 680  | 20,6 | 22,3 | 23,6 | 24,9 | 25,8 | 26,7 | 27,5 | 28,6 | 28,9 | 29,2 | 29,7 |
| 700  | 18,0 | 19,5 | 20,7 | 22,0 | 23,1 | 24,2 | 25,1 | 26,4 | 27,3 | 27,8 | 28,7 |
| 720  | 15,6 | 16,4 | 17,7 | 19,3 | 20,3 | 21,6 | 22,6 | 23,9 | 25,0 | 26,1 | 26,8 |
| 740  | 13,3 | 14,2 | 15,3 | 16,5 | 17,4 | 18,8 | 19,5 | 21,3 | 22,5 | 23,6 | 24,6 |
| 760  | 11,5 | 12,2 | 13,1 | 14,2 | 15,1 | 16,0 | 17,3 | 18,6 | 19,4 | 21,0 | 22,1 |
| 780  | 10,7 | 11,1 | 11,5 | 12,3 | 13,2 | 14,0 | 15,0 | 15,8 | 17,1 | 18,5 | 19,3 |
| 800  | 10,3 | 10,4 | 10,7 | 11,0 | 11,6 | 12,3 | 13,2 | 14,1 | 14,8 | 15,9 | 17,0 |
| 820  | 11,4 | 11,0 | 10,9 | 10,8 | 10,8 | 11,2 | 11,4 | 12,0 | 12,5 | 13,4 | 15,4 |
| 840  | 12,4 | 11,7 | 11,2 | 10,7 | 10,6 | 11,1 | 11,2 | 11,3 | 11,7 | 12,2 | 13,2 |
| 860  | 14,3 | 13,3 | 12,5 | 11,9 | 11,4 | 11,0 | 10,9 | 10,8 | 10,9 | 11,2 | 11,5 |
| 880  | 17,0 | 15,9 | 14,8 | 13,7 | 12,8 | 12,0 | 11,6 | 11,3 | 11,1 | 10,8 | 11,0 |
| 900  | 19,7 | 18,6 | 17,2 | 16,4 | 15,3 | 14,1 | 13,3 | 12,3 | 11,9 | 11,3 | 11,2 |
| 920  | 22,3 | 21,3 | 20,0 | 19,3 | 18,0 | 16,7 | 15,7 | 14,6 | 13,7 | 12,8 | 12,1 |
| 940  | 24,2 | 23,5 | 22,7 | 21,8 | 20,6 | 19,5 | 18,4 | 17,3 | 16,2 | 15,1 | 14,0 |
| 960  | 24,5 | 24,2 | 24,3 | 23,7 | 22,9 | 22,1 | 21,0 | 20,0 | 18,9 | 17,9 | 16,7 |
| 980  | 23,6 | 24,0 | 24,3 | 24,3 | 24,3 | 23,7 | 23,0 | 22,4 | 21,4 | 20,3 | 19,5 |
| 1000 | 21,4 | 22,5 | 23,0 | 23,5 | 24,0 | 24,2 | 24,2 | 23,7 | 23,1 | 22,5 | 21,6 |

TABLE XII.

Perturbations produced by *Mars*

ARGUMENTS. B and D.

D

| 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   |
|------|------|------|------|------|------|------|------|
| 9,5  | 10,2 | 10,8 | 11,2 | 11,5 | 11,7 | 11,8 | 11,5 |
| 8,3  | 9,1  | 9,8  | 10,5 | 10,9 | 11,2 | 11,5 | 11,6 |
| 7,1  | 7,9  | 8,8  | 9,4  | 10,0 | 10,6 | 10,8 | 11,2 |
| 5,8  | 6,7  | 7,6  | 8,4  | 9,1  | 9,8  | 10,3 | 10,5 |
| 4,3  | 5,3  | 6,4  | 7,2  | 8,0  | 8,9  | 9,3  | 9,9  |
| 3,3  | 4,2  | 5,0  | 5,9  | 6,8  | 7,6  | 8,4  | 9,1  |
| 2,4  | 3,1  | 3,9  | 4,8  | 5,6  | 6,4  | 7,3  | 8,0  |
| 2,1  | 2,4  | 2,9  | 3,8  | 4,6  | 5,5  | 6,3  | 7,0  |
| 2,0  | 2,2  | 2,4  | 2,7  | 3,5  | 4,4  | 5,1  | 5,9  |
| 1,9  | 2,0  | 2,3  | 2,6  | 2,9  | 3,4  | 3,9  | 4,9  |
| 2,3  | 2,2  | 2,2  | 2,4  | 2,7  | 3,0  | 3,4  | 3,8  |
| 3,0  | 2,6  | 2,5  | 2,4  | 2,5  | 2,7  | 3,1  | 3,5  |
| 3,7  | 3,3  | 3,0  | 2,9  | 2,7  | 2,8  | 2,9  | 3,2  |
| 4,8  | 4,1  | 3,7  | 3,5  | 3,1  | 3,1  | 3,0  | 3,1  |
| 5,5  | 5,1  | 4,6  | 4,1  | 3,8  | 3,5  | 3,5  | 3,4  |
| 6,2  | 5,8  | 5,6  | 5,0  | 4,8  | 4,2  | 3,9  | 3,8  |
| 6,9  | 6,6  | 6,1  | 5,9  | 5,4  | 5,1  | 4,7  | 4,3  |
| 7,2  | 7,1  | 6,9  | 6,5  | 6,2  | 5,8  | 5,5  | 5,1  |
| 7,5  | 7,4  | 7,1  | 7,0  | 6,8  | 6,4  | 6,2  | 5,8  |
| 7,5  | 7,6  | 7,3  | 7,3  | 7,2  | 7,1  | 6,7  | 6,5  |
| 7,3  | 7,3  | 7,5  | 7,4  | 7,4  | 7,4  | 7,1  | 7,0  |
| 6,9  | 7,0  | 7,3  | 7,4  | 7,4  | 7,4  | 7,3  | 7,5  |
| 6,5  | 6,8  | 6,8  | 7,1  | 7,2  | 7,3  | 7,3  | 7,4  |
| 6,2  | 6,2  | 6,5  | 6,7  | 6,8  | 7,1  | 7,1  | 7,3  |
| 5,8  | 5,9  | 6,0  | 6,2  | 6,4  | 6,5  | 7,0  | 6,9  |
| 5,3  | 5,4  | 5,7  | 5,8  | 6,0  | 6,0  | 6,3  | 6,6  |
| 5,1  | 5,1  | 5,1  | 5,3  | 5,4  | 5,6  | 5,8  | 6,0  |
| 4,7  | 4,8  | 4,8  | 4,8  | 5,0  | 5,1  | 5,4  | 5,5  |
| 4,4  | 4,5  | 4,6  | 4,6  | 4,7  | 4,8  | 4,8  | 5,0  |
| 4,2  | 4,3  | 4,4  | 4,3  | 4,5  | 4,4  | 4,4  | 4,5  |
| 4,0  | 4,2  | 4,3  | 4,2  | 4,2  | 4,2  | 4,2  | 4,3  |
| 4,2  | 4,0  | 4,1  | 4,0  | 4,0  | 4,0  | 4,0  | 3,9  |
| 4,3  | 4,2  | 4,1  | 4,0  | 4,1  | 4,0  | 3,9  | 3,9  |
| 4,6  | 4,4  | 4,3  | 4,1  | 4,1  | 4,1  | 4,0  | 3,8  |
| 4,8  | 4,6  | 4,5  | 4,3  | 4,2  | 4,1  | 4,0  | 3,9  |
| 5,3  | 5,0  | 4,8  | 4,5  | 4,6  | 4,0  | 4,1  | 4,1  |
| 5,8  | 5,5  | 5,1  | 5,0  | 4,7  | 4,5  | 4,1  | 4,1  |
| 6,5  | 6,1  | 5,7  | 5,4  | 5,2  | 4,9  | 4,6  | 4,3  |
| 7,4  | 6,7  | 6,4  | 6,0  | 5,6  | 5,3  | 5,1  | 5,0  |
| 8,2  | 7,6  | 6,9  | 6,5  | 6,4  | 5,8  | 5,6  | 5,3  |
| 9,2  | 8,5  | 8,0  | 7,3  | 6,8  | 6,5  | 6,1  | 5,8  |
| 10,1 | 9,6  | 8,8  | 8,2  | 7,6  | 7,1  | 6,7  | 6,5  |
| 10,9 | 10,4 | 9,8  | 9,1  | 8,4  | 7,9  | 7,5  | 6,9  |
| 11,7 | 11,0 | 10,4 | 10,0 | 9,4  | 8,7  | 8,2  | 7,7  |
| 12,3 | 11,9 | 11,3 | 10,6 | 10,2 | 9,7  | 8,9  | 8,4  |
| 12,4 | 12,2 | 11,8 | 11,6 | 10,8 | 10,3 | 9,7  | 9,3  |
| 12,3 | 12,3 | 12,2 | 11,9 | 11,6 | 11,0 | 10,5 | 9,9  |
| 12,1 | 12,1 | 12,2 | 12,2 | 11,8 | 11,4 | 11,0 | 10,6 |
| 11,4 | 11,9 | 11,9 | 12,0 | 12,0 | 11,7 | 11,4 | 11,0 |
| 10,6 | 11,1 | 11,6 | 11,8 | 11,9 | 11,9 | 11,7 | 11,4 |
| 9,5  | 10,2 | 10,8 | 11,2 | 11,5 | 11,7 | 11,8 | 11,5 |
| 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   |



## SOLAR TABLES.

TABLE XII.

Perturbations produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0    | 11,5 | 11,2 | 11,0 | 10,6 | 10,1 | 9,9  | 9,5  | 9,0  | 8,6  | 8,2 | 8,1 | 7,8 | 7,6 | 7,4 | 7,2 | 7,0 | 6,6 | 6,4 | 6,2 |
| 20   | 11,6 | 11,4 | 11,0 | 10,9 | 10,6 | 10,2 | 9,7  | 9,1  | 8,8  | 8,4 | 8,1 | 7,9 | 7,8 | 7,8 | 7,2 | 7,3 | 7,2 | 7,0 | 6,6 |
| 40   | 11,2 | 11,3 | 11,2 | 11,0 | 10,8 | 10,5 | 10,3 | 9,8  | 9,4  | 9,3 | 9,1 | 8,7 | 8,4 | 8,2 | 8,1 | 7,6 | 7,5 | 7,3 | 7,2 |
| 60   | 10,5 | 10,9 | 11,1 | 10,9 | 11,0 | 10,9 | 10,4 | 10,0 | 9,7  | 9,5 | 9,2 | 8,8 | 8,7 | 8,4 | 8,0 | 7,9 | 7,8 | 7,6 | 7,5 |
| 80   | 9,9  | 10,0 | 10,5 | 10,9 | 10,8 | 10,7 | 10,4 | 10,3 | 10,0 | 9,7 | 9,3 | 9,0 | 8,8 | 8,6 | 8,5 | 8,2 | 8,0 | 7,6 | 7,7 |
| 100  | 9,1  | 9,5  | 9,8  | 10,1 | 10,6 | 10,5 | 10,4 | 10,3 | 10,1 | 9,9 | 9,6 | 9,3 | 9,0 | 8,8 | 8,5 | 8,6 | 8,4 | 8,2 | 7,6 |
| 120  | 8,0  | 8,8  | 9,3  | 9,5  | 9,9  | 10,2 | 10,2 | 10,1 | 10,0 | 9,8 | 9,6 | 9,4 | 9,1 | 8,9 | 8,7 | 8,4 | 8,4 | 8,3 | 8,3 |
| 140  | 7,0  | 7,9  | 8,4  | 9,0  | 9,3  | 9,6  | 9,9  | 9,9  | 9,9  | 9,7 | 9,7 | 9,4 | 9,3 | 8,9 | 8,7 | 8,4 | 8,3 | 8,2 | 8,1 |
| 160  | 5,9  | 6,5  | 7,2  | 8,0  | 8,5  | 8,9  | 9,2  | 9,6  | 9,5  | 9,6 | 9,5 | 9,5 | 9,3 | 9,1 | 8,9 | 8,7 | 8,4 | 8,3 | 8,3 |
| 180  | 4,9  | 5,6  | 6,4  | 6,9  | 7,7  | 8,3  | 8,6  | 8,9  | 9,4  | 9,3 | 9,3 | 9,3 | 9,2 | 9,1 | 8,8 | 8,7 | 8,5 | 8,4 | 8,2 |
| 200  | 3,8  | 4,6  | 5,3  | 6,0  | 6,7  | 7,4  | 7,9  | 8,3  | 8,6  | 8,9 | 9,1 | 9,0 | 9,0 | 8,9 | 8,8 | 8,6 | 8,4 | 8,4 | 8,3 |
| 220  | 3,5  | 3,9  | 4,4  | 5,1  | 5,8  | 6,4  | 7,1  | 7,6  | 7,9  | 8,4 | 8,6 | 8,8 | 8,8 | 8,7 | 8,7 | 8,6 | 8,4 | 8,2 | 8,1 |
| 240  | 3,2  | 3,6  | 4,0  | 4,4  | 5,0  | 5,5  | 6,2  | 6,8  | 7,4  | 7,6 | 8,1 | 8,4 | 8,4 | 8,5 | 8,4 | 8,5 | 8,3 | 8,1 | 8,0 |
| 260  | 3,1  | 3,2  | 3,8  | 4,1  | 4,5  | 4,9  | 5,4  | 5,9  | 6,6  | 7,1 | 7,5 | 7,7 | 8,0 | 8,2 | 8,2 | 8,1 | 8,1 | 8,1 | 7,8 |
| 280  | 3,4  | 3,4  | 3,5  | 3,8  | 4,2  | 4,5  | 4,9  | 5,5  | 5,6  | 6,2 | 6,8 | 7,1 | 7,5 | 7,8 | 7,8 | 8,0 | 7,8 | 7,9 | 7,9 |
| 300  | 3,8  | 3,7  | 3,7  | 3,7  | 3,9  | 4,4  | 4,7  | 4,9  | 5,4  | 5,7 | 6,0 | 6,6 | 6,9 | 7,3 | 7,6 | 7,5 | 7,6 | 7,7 | 7,6 |
| 320  | 4,3  | 4,2  | 4,1  | 4,0  | 4,1  | 4,2  | 4,4  | 4,7  | 5,0  | 5,4 | 5,8 | 6,0 | 6,4 | 6,6 | 7,1 | 7,3 | 7,4 | 7,4 | 7,3 |
| 340  | 5,1  | 4,9  | 4,6  | 4,4  | 4,4  | 4,3  | 4,5  | 4,5  | 5,0  | 5,2 | 5,5 | 5,8 | 6,0 | 6,3 | 6,4 | 6,7 | 7,2 | 7,1 | 7,2 |
| 360  | 5,8  | 5,6  | 5,3  | 5,0  | 4,8  | 4,8  | 4,7  | 4,8  | 4,9  | 5,1 | 5,4 | 5,5 | 5,9 | 6,1 | 6,2 | 6,4 | 6,5 | 6,9 | 6,9 |
| 380  | 6,5  | 6,4  | 5,9  | 5,7  | 5,5  | 5,4  | 5,1  | 5,1  | 5,1  | 5,1 | 5,4 | 5,5 | 5,7 | 5,8 | 6,1 | 6,3 | 6,4 | 6,6 | 6,7 |
| 400  | 7,0  | 6,7  | 6,7  | 6,3  | 6,1  | 5,9  | 5,7  | 5,6  | 5,5  | 5,5 | 5,5 | 5,6 | 5,7 | 5,9 | 6,0 | 6,2 | 6,3 | 6,4 | 6,5 |
| 420  | 7,4  | 7,2  | 6,9  | 7,1  | 6,7  | 6,4  | 6,3  | 6,1  | 6,0  | 5,9 | 5,9 | 5,8 | 5,8 | 6,1 | 6,3 | 6,2 | 6,4 | 6,3 | 6,4 |
| 440  | 7,5  | 7,4  | 7,4  | 7,0  | 7,1  | 7,4  | 6,8  | 6,7  | 6,5  | 6,3 | 6,3 | 6,4 | 6,2 | 6,3 | 6,4 | 6,4 | 6,6 | 6,5 | 6,6 |
| 460  | 7,3  | 7,4  | 7,4  | 7,5  | 7,4  | 7,3  | 7,3  | 7,2  | 7,1  | 7,1 | 6,7 | 6,7 | 6,7 | 6,7 | 6,5 | 6,5 | 6,6 | 6,7 | 6,9 |
| 480  | 6,9  | 7,1  | 7,3  | 7,4  | 7,5  | 7,3  | 7,6  | 7,5  | 7,4  | 7,5 | 7,4 | 7,2 | 7,1 | 7,1 | 7,1 | 7,0 | 6,9 | 6,9 | 6,9 |
| 500  | 6,6  | 6,8  | 6,9  | 7,2  | 7,3  | 7,5  | 7,5  | 7,6  | 7,8  | 7,7 | 7,8 | 7,7 | 7,6 | 7,4 | 7,5 | 7,4 | 7,4 | 7,3 | 7,2 |
| 520  | 6,0  | 6,3  | 6,5  | 6,7  | 7,1  | 7,2  | 7,5  | 7,5  | 7,7  | 7,8 | 7,9 | 7,6 | 7,9 | 7,9 | 7,8 | 7,8 | 7,8 | 7,8 | 7,6 |
| 540  | 5,5  | 5,7  | 6,0  | 6,3  | 6,6  | 6,9  | 7,1  | 7,3  | 7,4  | 7,7 | 7,9 | 8,0 | 8,2 | 8,3 | 8,3 | 8,3 | 8,2 | 8,2 | 8,1 |
| 560  | 5,0  | 5,2  | 5,4  | 5,8  | 5,9  | 6,2  | 6,6  | 6,9  | 7,1  | 7,4 | 7,7 | 7,8 | 8,1 | 8,2 | 8,6 | 8,4 | 8,6 | 8,7 | 8,5 |
| 580  | 4,5  | 4,7  | 4,9  | 5,0  | 5,3  | 5,7  | 6,0  | 6,6  | 6,8  | 7,1 | 7,2 | 7,5 | 7,9 | 8,2 | 8,3 | 8,6 | 8,8 | 8,8 | 9,0 |
| 600  | 4,3  | 4,3  | 4,4  | 4,6  | 4,6  | 5,0  | 5,3  | 5,6  | 5,9  | 6,5 | 6,9 | 7,0 | 7,4 | 7,7 | 8,1 | 8,5 | 8,6 | 8,9 | 9,1 |
| 620  | 3,9  | 4,0  | 4,0  | 4,1  | 4,3  | 4,4  | 4,6  | 4,9  | 5,3  | 5,4 | 6,1 | 6,6 | 6,9 | 7,4 | 7,6 | 8,0 | 8,5 | 8,7 | 9,0 |
| 640  | 3,9  | 3,8  | 3,8  | 3,8  | 3,9  | 3,9  | 4,1  | 4,3  | 4,5  | 5,0 | 5,2 | 5,8 | 6,3 | 6,7 | 7,2 | 7,5 | 7,9 | 8,3 | 8,7 |
| 660  | 3,8  | 3,7  | 3,7  | 3,6  | 3,6  | 3,7  | 3,8  | 3,9  | 4,1  | 4,2 | 4,5 | 5,0 | 5,3 | 6,0 | 6,3 | 7,0 | 7,3 | 7,7 | 8,2 |
| 680  | 3,9  | 3,8  | 3,6  | 3,4  | 3,5  | 3,4  | 3,5  | 3,5  | 3,6  | 3,7 | 3,8 | 4,2 | 4,6 | 4,9 | 5,6 | 6,0 | 6,6 | 7,1 | 7,7 |
| 700  | 4,1  | 3,9  | 3,8  | 3,6  | 3,5  | 3,3  | 3,3  | 3,2  | 3,2  | 3,2 | 3,5 | 3,6 | 3,8 | 4,2 | 4,5 | 5,2 | 5,8 | 6,4 | 6,8 |
| 720  | 4,1  | 4,1  | 4,0  | 3,8  | 3,6  | 3,5  | 3,3  | 3,2  | 3,3  | 3,2 | 3,0 | 3,2 | 3,4 | 3,6 | 3,9 | 4,3 | 4,7 | 5,3 | 5,9 |
| 740  | 4,3  | 4,3  | 4,2  | 4,0  | 3,8  | 3,7  | 3,5  | 3,2  | 3,0  | 3,0 | 2,9 | 2,8 | 2,9 | 3,1 | 3,3 | 3,6 | 3,9 | 4,4 | 4,8 |
| 760  | 5,0  | 4,7  | 4,4  | 4,3  | 4,1  | 3,8  | 3,7  | 3,4  | 3,1  | 3,0 | 2,9 | 2,7 | 2,7 | 2,8 | 2,8 | 3,0 | 3,3 | 3,6 | 4,0 |
| 780  | 5,3  | 5,1  | 4,7  | 4,6  | 4,4  | 4,4  | 4,0  | 3,8  | 3,4  | 3,2 | 2,9 | 2,8 | 2,7 | 2,5 | 2,6 | 2,5 | 2,7 | 3,1 | 3,3 |
| 800  | 5,8  | 5,5  | 5,4  | 4,8  | 4,7  | 4,7  | 4,5  | 4,2  | 3,9  | 3,5 | 3,3 | 2,9 | 2,8 | 2,7 | 2,5 | 2,5 | 2,5 | 2,5 | 2,7 |
| 820  | 6,5  | 6,1  | 5,8  | 5,6  | 5,0  | 5,0  | 4,9  | 4,6  | 4,3  | 4,1 | 3,6 | 3,3 | 3,0 | 2,9 | 2,6 | 2,4 | 2,3 | 2,2 | 2,3 |
| 840  | 6,9  | 6,7  | 6,3  | 6,1  | 5,8  | 5,3  | 5,2  | 4,9  | 4,9  | 4,5 | 4,2 | 3,9 | 3,5 | 3,1 | 2,8 | 2,6 | 2,4 | 2,3 | 2,2 |
| 860  | 7,7  | 7,4  | 6,9  | 6,6  | 6,2  | 6,2  | 5,5  | 5,4  | 5,2  | 5,0 | 4,8 | 4,4 | 4,1 | 3,6 | 3,3 | 3,0 | 2,7 | 2,4 | 2,3 |
| 880  | 8,4  | 7,9  | 7,6  | 7,1  | 6,9  | 6,4  | 6,4  | 5,8  | 5,7  | 5,4 | 5,2 | 5,0 | 4,6 | 4,3 | 3,8 | 3,6 | 3,2 | 2,8 | 2,5 |
| 900  | 9,3  | 8,7  | 8,3  | 7,7  | 7,4  | 7,1  | 6,7  | 6,6  | 6,1  | 6,0 | 5,6 | 5,4 | 5,2 | 4,9 | 4,6 | 4,2 | 3,6 | 3,4 | 2,9 |
| 920  | 9,9  | 9,3  | 8,8  | 8,4  | 7,9  | 7,7  | 7,3  | 6,9  | 6,6  | 6,3 | 6,2 | 6,1 | 5,6 | 5,4 | 5,1 | 4,6 | 4,5 | 3,9 | 3,5 |
| 940  | 10,6 | 10,1 | 9,5  | 8,9  | 8,7  | 8,2  | 7,8  | 7,6  | 7,2  | 7,1 | 6,5 | 6,5 | 6,3 | 5,9 | 5,7 | 5,3 | 4,9 | 4,7 | 4,3 |
| 960  | 11,0 | 10,7 | 10,3 | 9,7  | 9,1  | 8,7  | 8,4  | 8,0  | 7,8  | 7,4 | 7,2 | 6,9 | 6,7 | 6,5 | 6,2 | 5,9 | 5,5 | 5,1 | 4,9 |
| 980  | 11,4 | 11,0 | 10,6 | 10,2 | 9,8  | 9,2  | 8,9  | 8,4  | 8,1  | 8,0 | 7,6 | 7,3 | 7,2 | 6,9 | 6,8 | 6,4 | 6,1 | 5,8 | 5,4 |
| 1000 | 11,5 | 11,2 | 11,0 | 10,6 | 10,0 | 9,9  | 9,5  | 9,0  | 8,6  | 8,2 | 8,1 | 7,4 | 7,6 | 7,4 | 7,2 | 7,0 | 6,6 | 6,4 | 6,2 |
|      | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 |



TABLE XII.  
 Perturbations produced by *Mars*.  
 ARGUMENTS. B and D.  
 D

| B    | 250 | 260 | 270 | 280 | 290 | 300 | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  |
|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 6,2 | 5,7 | 5,3 | 4,9 | 4,7 | 4,1 | 3,8  | 3,4  | 2,8  | 2,6  | 2,4  | 2,2  | 2,3  | 2,3  | 2,5  | 2,7  | 2,9  | 3,4  | 4,0  |
| 20   | 6,6 | 6,3 | 6,0 | 5,7 | 5,3 | 5,0 | 4,4  | 3,9  | 3,5  | 3,1  | 2,7  | 2,6  | 2,4  | 2,4  | 2,3  | 2,5  | 2,7  | 3,0  | 3,3  |
| 40   | 7,2 | 6,8 | 6,6 | 6,2 | 5,9 | 5,6 | 5,2  | 4,7  | 4,2  | 3,9  | 3,5  | 3,0  | 2,8  | 2,7  | 2,6  | 2,5  | 2,6  | 2,8  | 2,9  |
| 60   | 7,5 | 7,3 | 7,1 | 6,8 | 6,4 | 6,1 | 5,8  | 5,4  | 5,0  | 4,6  | 4,2  | 3,8  | 3,4  | 3,1  | 2,8  | 2,8  | 2,7  | 2,7  | 2,7  |
| 80   | 7,7 | 7,6 | 7,4 | 7,1 | 7,0 | 6,7 | 6,3  | 6,0  | 5,7  | 5,4  | 4,8  | 4,4  | 4,0  | 3,6  | 3,4  | 3,1  | 2,9  | 2,9  | 2,9  |
| 100  | 7,6 | 7,7 | 7,8 | 7,6 | 7,3 | 7,2 | 6,9  | 6,6  | 6,3  | 5,9  | 5,6  | 5,2  | 4,8  | 4,3  | 4,0  | 3,7  | 3,5  | 3,2  | 3,0  |
| 120  | 8,3 | 8,0 | 7,9 | 7,7 | 7,6 | 7,5 | 7,3  | 7,0  | 6,9  | 6,4  | 6,1  | 5,8  | 5,3  | 5,2  | 4,6  | 4,3  | 4,0  | 3,8  | 3,6  |
| 140  | 8,1 | 8,3 | 8,0 | 7,9 | 7,8 | 7,7 | 7,5  | 7,4  | 7,2  | 6,9  | 6,6  | 6,5  | 6,1  | 5,6  | 5,4  | 5,0  | 4,6  | 4,3  | 4,0  |
| 160  | 8,3 | 8,2 | 8,1 | 8,0 | 7,9 | 7,9 | 7,7  | 7,6  | 7,5  | 7,3  | 7,0  | 6,8  | 6,6  | 6,2  | 5,9  | 5,5  | 5,3  | 4,9  | 4,6  |
| 180  | 8,2 | 8,0 | 8,0 | 8,1 | 7,9 | 7,8 | 8,0  | 7,8  | 7,7  | 7,5  | 7,4  | 7,3  | 6,9  | 6,7  | 6,5  | 6,2  | 5,8  | 5,6  | 5,3  |
| 200  | 8,3 | 8,1 | 8,0 | 7,9 | 7,8 | 7,8 | 7,9  | 7,9  | 7,8  | 7,7  | 7,6  | 7,5  | 7,3  | 7,1  | 6,9  | 6,6  | 6,4  | 6,1  | 5,6  |
| 220  | 8,1 | 8,0 | 7,9 | 7,8 | 7,7 | 7,7 | 7,6  | 7,7  | 7,7  | 7,7  | 7,8  | 7,7  | 7,5  | 7,3  | 7,2  | 7,0  | 6,7  | 6,5  | 6,2  |
| 240  | 8,0 | 7,8 | 7,8 | 7,8 | 7,8 | 7,8 | 7,8  | 7,6  | 7,6  | 7,6  | 7,6  | 7,7  | 7,6  | 7,5  | 7,3  | 7,2  | 7,1  | 6,9  | 6,6  |
| 260  | 7,8 | 7,8 | 7,7 | 7,6 | 7,6 | 7,6 | 7,5  | 7,4  | 7,3  | 7,5  | 7,5  | 7,5  | 7,6  | 7,6  | 7,5  | 7,5  | 7,3  | 7,1  | 7,0  |
| 280  | 7,9 | 7,7 | 7,5 | 7,5 | 7,3 | 7,3 | 7,4  | 7,3  | 7,4  | 7,3  | 7,3  | 7,4  | 7,4  | 7,3  | 7,4  | 7,3  | 7,5  | 7,2  | 7,1  |
| 300  | 7,6 | 7,6 | 7,6 | 7,4 | 7,3 | 7,1 | 7,0  | 7,1  | 7,1  | 7,1  | 7,0  | 7,2  | 7,3  | 7,3  | 7,3  | 7,2  | 7,2  | 7,3  | 7,2  |
| 320  | 7,3 | 7,4 | 7,4 | 7,3 | 7,1 | 7,0 | 7,0  | 6,8  | 6,8  | 6,9  | 6,9  | 6,8  | 7,0  | 7,1  | 7,1  | 7,1  | 7,1  | 7,1  | 7,0  |
| 340  | 7,2 | 7,2 | 7,1 | 7,1 | 7,0 | 6,9 | 6,8  | 6,8  | 6,7  | 6,6  | 6,6  | 6,6  | 6,8  | 6,9  | 6,9  | 7,0  | 7,0  | 6,9  | 6,9  |
| 360  | 6,9 | 7,0 | 7,0 | 6,9 | 6,8 | 6,7 | 6,6  | 6,5  | 6,5  | 6,4  | 6,3  | 6,4  | 6,5  | 6,6  | 6,7  | 6,8  | 6,8  | 6,8  | 6,8  |
| 380  | 6,7 | 6,6 | 6,6 | 6,7 | 6,8 | 6,7 | 6,6  | 6,5  | 6,3  | 6,3  | 6,2  | 6,2  | 6,2  | 6,3  | 6,3  | 6,4  | 6,5  | 6,6  | 6,7  |
| 400  | 6,5 | 6,6 | 6,6 | 6,5 | 6,6 | 6,6 | 6,5  | 6,4  | 6,2  | 6,2  | 6,0  | 6,1  | 6,0  | 6,0  | 6,0  | 6,0  | 6,1  | 6,2  | 6,3  |
| 420  | 6,4 | 6,5 | 6,6 | 6,5 | 6,5 | 6,5 | 6,5  | 6,4  | 6,2  | 6,1  | 6,0  | 5,9  | 5,8  | 5,9  | 5,9  | 5,9  | 5,9  | 5,9  | 6,0  |
| 440  | 6,6 | 6,5 | 6,5 | 6,5 | 6,5 | 6,3 | 6,3  | 6,2  | 6,1  | 6,0  | 5,8  | 5,8  | 5,7  | 5,6  | 5,6  | 5,6  | 5,7  | 5,7  | 5,8  |
| 460  | 6,9 | 6,7 | 6,6 | 6,6 | 6,6 | 6,5 | 6,3  | 6,2  | 6,0  | 5,9  | 5,8  | 5,7  | 5,5  | 5,5  | 5,4  | 5,5  | 5,4  | 5,5  | 5,3  |
| 480  | 6,9 | 7,0 | 7,0 | 6,8 | 6,7 | 6,6 | 6,5  | 6,3  | 6,2  | 6,0  | 5,7  | 5,6  | 5,5  | 5,4  | 5,3  | 5,2  | 5,2  | 5,2  | 5,3  |
| 500  | 7,2 | 7,3 | 7,2 | 7,1 | 6,9 | 6,8 | 6,8  | 6,6  | 6,4  | 6,2  | 6,0  | 5,7  | 5,4  | 5,3  | 5,2  | 5,1  | 5,1  | 5,1  | 5,0  |
| 520  | 7,6 | 7,6 | 7,5 | 7,5 | 7,4 | 7,1 | 7,0  | 6,9  | 6,7  | 6,4  | 6,1  | 6,1  | 5,7  | 5,5  | 5,1  | 5,1  | 5,0  | 4,9  | 5,0  |
| 540  | 8,1 | 8,0 | 7,9 | 7,9 | 7,8 | 7,6 | 7,5  | 7,2  | 7,1  | 6,7  | 6,5  | 6,2  | 6,1  | 5,8  | 5,5  | 5,2  | 5,0  | 4,9  | 4,8  |
| 560  | 8,5 | 8,5 | 8,4 | 8,2 | 8,3 | 8,2 | 8,0  | 7,6  | 7,4  | 7,3  | 7,0  | 6,6  | 6,3  | 6,0  | 5,8  | 5,4  | 5,3  | 5,0  | 4,7  |
| 580  | 9,0 | 8,9 | 8,9 | 8,7 | 8,7 | 8,6 | 8,4  | 8,4  | 8,0  | 7,8  | 7,5  | 7,0  | 6,8  | 6,3  | 6,2  | 5,9  | 5,5  | 5,3  | 5,0  |
| 600  | 9,1 | 9,1 | 9,2 | 9,2 | 9,1 | 9,0 | 8,8  | 8,7  | 8,6  | 8,3  | 8,0  | 7,8  | 7,4  | 7,0  | 6,6  | 6,3  | 6,0  | 5,6  | 5,3  |
| 620  | 9,0 | 9,2 | 9,5 | 9,5 | 9,5 | 9,4 | 9,3  | 9,2  | 9,1  | 8,9  | 8,6  | 8,4  | 8,1  | 7,6  | 7,2  | 6,8  | 6,5  | 6,1  | 5,7  |
| 640  | 8,7 | 9,0 | 9,3 | 9,5 | 9,8 | 9,8 | 9,7  | 9,7  | 9,6  | 9,4  | 9,3  | 9,0  | 8,7  | 8,2  | 7,8  | 7,4  | 7,0  | 6,6  | 6,3  |
| 660  | 8,2 | 8,7 | 9,0 | 9,4 | 9,7 | 9,8 | 10,1 | 10,0 | 10,0 | 9,9  | 9,8  | 9,6  | 9,3  | 8,9  | 8,5  | 8,2  | 7,7  | 7,2  | 6,8  |
| 680  | 7,7 | 8,1 | 8,5 | 9,0 | 9,3 | 9,8 | 10,0 | 10,2 | 10,4 | 10,3 | 10,2 | 10,1 | 9,9  | 9,6  | 9,3  | 9,0  | 8,5  | 8,1  | 7,5  |
| 700  | 6,8 | 7,4 | 8,0 | 8,5 | 8,9 | 9,2 | 9,8  | 10,1 | 10,3 | 10,5 | 10,6 | 10,4 | 10,3 | 10,1 | 9,8  | 9,6  | 9,3  | 8,9  | 8,3  |
| 720  | 5,9 | 6,6 | 7,0 | 7,8 | 8,3 | 8,8 | 9,1  | 9,7  | 10,1 | 10,3 | 10,6 | 10,7 | 10,6 | 10,5 | 10,5 | 10,2 | 10,0 | 9,6  | 9,2  |
| 740  | 4,8 | 5,6 | 6,2 | 6,9 | 7,5 | 8,0 | 8,7  | 9,2  | 9,6  | 10,0 | 10,3 | 10,6 | 10,7 | 10,8 | 10,9 | 10,6 | 10,5 | 10,2 | 9,9  |
| 760  | 4,0 | 4,4 | 5,1 | 5,8 | 6,5 | 7,2 | 7,8  | 8,4  | 9,0  | 9,5  | 9,8  | 10,2 | 10,6 | 10,9 | 11,0 | 11,0 | 11,0 | 10,7 | 10,5 |
| 780  | 3,3 | 3,7 | 4,1 | 4,8 | 5,4 | 6,1 | 6,9  | 7,6  | 8,2  | 8,9  | 9,4  | 9,9  | 10,3 | 10,6 | 10,9 | 11,1 | 11,2 | 11,0 | 10,8 |
| 800  | 2,7 | 3,0 | 3,4 | 3,8 | 4,4 | 5,0 | 5,6  | 6,6  | 7,3  | 7,9  | 8,5  | 9,2  | 9,8  | 10,1 | 10,6 | 10,8 | 11,1 | 11,3 | 11,1 |
| 820  | 2,3 | 2,6 | 2,8 | 3,1 | 3,4 | 4,1 | 4,7  | 5,4  | 6,0  | 7,0  | 7,6  | 8,2  | 8,9  | 9,6  | 10,0 | 10,5 | 10,8 | 11,0 | 11,3 |
| 840  | 2,2 | 2,3 | 2,4 | 2,6 | 2,8 | 3,2 | 3,8  | 4,3  | 5,0  | 5,6  | 6,5  | 7,2  | 7,9  | 9,8  | 9,2  | 9,9  | 10,3 | 10,7 | 10,9 |
| 860  | 2,3 | 2,1 | 2,2 | 2,3 | 2,5 | 2,7 | 3,0  | 3,4  | 4,0  | 4,6  | 5,3  | 6,1  | 6,9  | 7,5  | 8,4  | 9,1  | 9,6  | 10,1 | 10,7 |
| 880  | 2,5 | 2,3 | 2,1 | 2,0 | 2,2 | 2,3 | 2,5  | 2,6  | 3,1  | 3,7  | 4,3  | 5,0  | 5,7  | 6,6  | 7,1  | 8,1  | 8,7  | 9,4  | 9,8  |
| 900  | 2,9 | 2,6 | 2,3 | 2,2 | 2,2 | 2,1 | 2,2  | 2,4  | 2,7  | 3,0  | 3,4  | 4,0  | 4,6  | 5,4  | 6,1  | 6,9  | 7,6  | 8,4  | 9,1  |
| 920  | 3,5 | 3,2 | 2,9 | 2,6 | 2,2 | 2,0 | 2,1  | 2,2  | 2,3  | 2,3  | 2,8  | 3,3  | 3,7  | 4,3  | 5,0  | 5,8  | 6,5  | 7,2  | 8,0  |
| 940  | 4,3 | 3,8 | 3,4 | 3,0 | 2,7 | 2,4 | 2,1  | 2,0  | 2,1  | 2,3  | 2,3  | 2,7  | 2,9  | 3,4  | 4,1  | 4,7  | 5,5  | 6,1  | 7,0  |
| 960  | 4,9 | 4,5 | 4,0 | 3,4 | 3,1 | 2,8 | 2,4  | 2,3  | 2,2  | 2,2  | 2,3  | 2,3  | 2,5  | 2,8  | 3,2  | 3,9  | 4,5  | 5,1  | 5,7  |
| 980  | 5,4 | 5,1 | 4,8 | 4,3 | 3,9 | 3,5 | 3,0  | 2,7  | 2,4  | 2,2  | 2,3  | 2,3  | 2,4  | 2,5  | 2,8  | 3,0  | 3,6  | 4,1  | 4,7  |
| 1000 | 6,2 | 5,7 | 5,3 | 4,9 | 4,7 | 4,1 | 3,8  | 3,4  | 2,8  | 2,6  | 2,4  | 2,2  | 2,3  | 2,3  | 2,5  | 2,7  | 2,9  | 3,4  | 4,0  |
|      | 250 | 260 | 270 | 280 | 290 | 300 | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  |



TABLE XII.

Perturbations produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 4,0  | 4,5  | 5,2  | 5,9  | 6,6  | 7,3  | 8,0  | 8,5  | 9,0  | 9,5  | 10,0 | 10,4 | 10,7 | 10,9 | 10,8 | 10,6 | 10,4 | 10,3 | 10,0 |
| 20   | 3,3  | 3,8  | 4,3  | 4,9  | 5,6  | 6,2  | 6,9  | 7,6  | 8,2  | 8,8  | 9,3  | 9,7  | 10,0 | 10,4 | 10,6 | 10,7 | 10,6 | 10,4 | 10,2 |
| 40   | 2,9  | 3,2  | 3,7  | 4,2  | 4,8  | 5,4  | 5,9  | 6,6  | 7,3  | 7,9  | 8,4  | 8,9  | 9,4  | 9,8  | 10,1 | 10,4 | 10,4 | 10,5 | 10,3 |
| 60   | 2,7  | 3,0  | 3,2  | 3,6  | 4,0  | 4,5  | 5,1  | 5,7  | 6,3  | 6,9  | 7,5  | 8,0  | 8,6  | 9,1  | 9,4  | 9,8  | 10,2 | 10,2 | 10,3 |
| 80   | 2,9  | 2,9  | 3,1  | 3,3  | 3,5  | 3,9  | 4,4  | 4,9  | 5,4  | 5,9  | 6,5  | 7,1  | 7,7  | 8,2  | 8,7  | 9,0  | 9,3  | 9,6  | 9,8  |
| 100  | 3,0  | 3,0  | 3,1  | 3,2  | 3,5  | 3,6  | 3,8  | 4,2  | 4,8  | 5,3  | 5,9  | 6,4  | 6,9  | 7,4  | 7,9  | 8,4  | 8,7  | 9,0  | 9,4  |
| 120  | 3,6  | 3,4  | 3,3  | 3,3  | 3,4  | 3,5  | 3,6  | 3,9  | 4,2  | 4,7  | 5,1  | 5,6  | 6,0  | 6,6  | 6,9  | 7,6  | 8,1  | 8,3  | 8,6  |
| 140  | 4,0  | 3,9  | 3,8  | 3,6  | 3,6  | 3,6  | 3,7  | 4,0  | 4,0  | 4,2  | 4,6  | 5,0  | 5,4  | 5,9  | 6,3  | 6,8  | 7,2  | 7,7  | 8,0  |
| 160  | 4,6  | 4,4  | 4,2  | 3,9  | 4,1  | 3,8  | 3,7  | 4,0  | 4,1  | 4,2  | 4,5  | 4,6  | 4,9  | 5,3  | 5,8  | 6,0  | 6,5  | 6,9  | 7,4  |
| 180  | 5,3  | 5,0  | 4,8  | 4,4  | 4,2  | 4,2  | 4,2  | 4,0  | 4,1  | 4,3  | 4,4  | 4,4  | 4,7  | 5,0  | 5,2  | 5,6  | 6,0  | 6,3  | 6,7  |
| 200  | 5,6  | 5,5  | 5,2  | 5,1  | 4,8  | 4,6  | 4,5  | 4,5  | 4,4  | 4,5  | 4,5  | 4,7  | 4,6  | 4,8  | 5,0  | 5,3  | 5,4  | 5,8  | 6,1  |
| 220  | 6,2  | 5,9  | 5,7  | 5,5  | 5,3  | 5,1  | 4,9  | 4,9  | 4,8  | 4,7  | 4,8  | 4,8  | 4,9  | 5,0  | 5,0  | 5,1  | 5,3  | 5,5  | 5,7  |
| 240  | 6,6  | 6,4  | 6,2  | 5,9  | 5,8  | 5,6  | 5,4  | 5,3  | 5,2  | 5,1  | 5,1  | 5,1  | 5,2  | 5,2  | 5,2  | 5,3  | 5,3  | 5,4  | 5,5  |
| 260  | 7,0  | 6,7  | 6,6  | 6,4  | 6,1  | 6,0  | 5,9  | 5,8  | 5,7  | 5,6  | 5,5  | 5,4  | 5,4  | 5,4  | 5,5  | 5,5  | 5,5  | 5,5  | 5,5  |
| 280  | 7,1  | 6,9  | 6,8  | 6,7  | 6,5  | 6,3  | 6,2  | 6,1  | 6,0  | 5,9  | 5,9  | 5,9  | 5,8  | 5,8  | 5,8  | 5,8  | 5,9  | 5,8  | 5,8  |
| 300  | 7,2  | 7,1  | 7,0  | 6,8  | 6,8  | 6,6  | 6,5  | 6,4  | 6,3  | 6,2  | 6,2  | 6,2  | 6,2  | 6,2  | 6,1  | 6,2  | 6,1  | 6,1  | 6,1  |
| 320  | 7,0  | 7,2  | 7,1  | 6,9  | 6,8  | 6,8  | 6,7  | 6,6  | 6,5  | 6,5  | 6,5  | 6,5  | 6,6  | 6,6  | 6,5  | 6,6  | 6,6  | 6,5  | 6,5  |
| 340  | 6,9  | 6,9  | 6,9  | 7,0  | 6,9  | 6,9  | 6,8  | 6,7  | 6,8  | 6,7  | 6,6  | 6,7  | 6,8  | 6,9  | 6,9  | 6,9  | 7,0  | 7,0  | 6,9  |
| 360  | 6,8  | 6,9  | 6,8  | 6,8  | 6,8  | 6,8  | 6,7  | 6,7  | 6,6  | 6,6  | 6,8  | 6,8  | 6,8  | 6,9  | 7,0  | 7,2  | 7,3  | 7,3  | 7,3  |
| 380  | 6,7  | 6,7  | 6,5  | 6,5  | 6,6  | 6,7  | 6,6  | 6,6  | 6,7  | 6,7  | 6,7  | 6,8  | 6,9  | 6,9  | 7,0  | 7,2  | 7,4  | 7,5  | 7,6  |
| 400  | 6,3  | 6,4  | 6,4  | 6,3  | 6,3  | 6,4  | 6,5  | 6,5  | 6,5  | 6,6  | 6,7  | 6,7  | 6,8  | 6,8  | 7,0  | 7,1  | 7,3  | 7,6  | 7,9  |
| 420  | 6,0  | 6,0  | 6,2  | 6,3  | 6,3  | 6,2  | 6,2  | 6,3  | 6,3  | 6,3  | 6,3  | 6,5  | 6,6  | 6,7  | 6,9  | 7,0  | 7,2  | 7,6  | 7,8  |
| 440  | 5,8  | 5,9  | 5,9  | 6,0  | 6,0  | 6,0  | 6,0  | 6,0  | 6,1  | 6,0  | 6,1  | 6,2  | 6,2  | 6,4  | 6,6  | 6,9  | 7,0  | 7,3  | 7,5  |
| 460  | 5,3  | 5,4  | 5,5  | 5,7  | 5,8  | 5,8  | 5,8  | 5,8  | 5,8  | 5,8  | 5,8  | 5,9  | 6,0  | 6,1  | 6,2  | 6,5  | 6,9  | 7,1  | 7,2  |
| 480  | 5,3  | 5,3  | 5,3  | 5,5  | 5,5  | 5,5  | 5,6  | 5,5  | 5,6  | 5,4  | 5,6  | 5,7  | 5,5  | 5,8  | 5,9  | 6,0  | 6,2  | 6,7  | 7,1  |
| 500  | 5,0  | 5,0  | 5,0  | 5,1  | 5,2  | 5,3  | 5,3  | 5,3  | 5,2  | 5,2  | 5,2  | 5,3  | 5,4  | 5,4  | 5,5  | 5,6  | 5,9  | 6,1  | 6,4  |
| 520  | 5,0  | 4,9  | 4,9  | 4,9  | 4,8  | 5,0  | 5,1  | 5,1  | 5,1  | 5,1  | 5,1  | 5,0  | 5,0  | 5,1  | 5,2  | 5,2  | 5,3  | 5,6  | 5,9  |
| 540  | 4,8  | 4,8  | 4,8  | 4,7  | 4,8  | 4,8  | 4,9  | 4,9  | 5,0  | 4,9  | 4,8  | 4,8  | 4,9  | 4,8  | 4,8  | 4,8  | 5,0  | 5,1  | 5,4  |
| 560  | 4,7  | 4,7  | 4,6  | 4,6  | 4,7  | 4,7  | 4,6  | 4,7  | 4,7  | 4,7  | 4,7  | 4,6  | 4,6  | 4,6  | 4,5  | 4,5  | 4,5  | 4,7  | 4,8  |
| 580  | 5,0  | 4,9  | 4,6  | 4,5  | 4,5  | 4,6  | 4,5  | 4,4  | 4,4  | 4,5  | 4,5  | 4,5  | 4,4  | 4,4  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  |
| 600  | 5,3  | 5,1  | 4,9  | 4,6  | 4,5  | 4,4  | 4,4  | 4,4  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,3  | 4,2  | 4,1  | 4,0  | 4,0  |
| 620  | 5,7  | 5,3  | 5,1  | 4,9  | 4,7  | 4,6  | 4,4  | 4,3  | 4,1  | 4,2  | 4,2  | 4,2  | 4,2  | 4,1  | 4,0  | 4,0  | 3,9  | 3,9  | 3,8  |
| 640  | 6,3  | 5,8  | 5,4  | 5,2  | 5,0  | 4,7  | 4,6  | 4,4  | 4,1  | 4,1  | 4,1  | 4,2  | 4,2  | 4,0  | 3,9  | 4,0  | 3,8  | 3,8  | 3,8  |
| 660  | 6,8  | 6,4  | 6,0  | 5,7  | 5,4  | 5,0  | 4,8  | 4,7  | 4,5  | 4,3  | 4,2  | 4,2  | 4,1  | 4,0  | 4,0  | 3,9  | 3,8  | 3,7  | 3,5  |
| 680  | 7,5  | 7,1  | 6,6  | 6,2  | 5,7  | 5,4  | 5,1  | 4,9  | 4,7  | 4,5  | 4,4  | 4,3  | 4,0  | 3,9  | 4,0  | 3,9  | 3,8  | 3,6  | 3,5  |
| 700  | 8,3  | 7,8  | 7,2  | 6,8  | 6,4  | 6,0  | 5,6  | 5,3  | 5,0  | 4,7  | 4,6  | 4,6  | 4,3  | 4,1  | 3,9  | 3,9  | 3,9  | 3,7  | 3,5  |
| 720  | 9,2  | 8,6  | 8,0  | 7,6  | 7,1  | 6,6  | 6,2  | 5,7  | 5,5  | 5,2  | 4,9  | 4,6  | 4,6  | 4,3  | 4,1  | 4,0  | 3,9  | 3,8  | 3,8  |
| 740  | 9,9  | 9,4  | 9,0  | 8,4  | 8,0  | 7,4  | 6,9  | 6,3  | 6,0  | 5,6  | 5,3  | 5,0  | 4,7  | 4,5  | 4,2  | 4,2  | 4,2  | 4,0  | 3,7  |
| 760  | 10,5 | 10,3 | 9,7  | 9,3  | 8,6  | 8,1  | 7,6  | 7,2  | 6,5  | 6,2  | 5,8  | 5,5  | 5,2  | 4,9  | 4,7  | 4,5  | 4,3  | 4,2  | 4,1  |
| 780  | 10,8 | 10,7 | 10,5 | 9,9  | 9,6  | 9,0  | 8,5  | 7,8  | 7,4  | 7,0  | 6,4  | 6,1  | 5,7  | 5,5  | 5,1  | 4,9  | 4,5  | 4,4  | 4,3  |
| 800  | 11,1 | 11,0 | 11,0 | 10,6 | 10,2 | 9,9  | 9,3  | 8,8  | 8,1  | 7,7  | 7,3  | 6,7  | 6,3  | 5,8  | 5,6  | 5,2  | 5,0  | 4,6  | 4,5  |
| 820  | 11,3 | 11,3 | 11,1 | 10,9 | 10,6 | 10,3 | 10,0 | 9,6  | 9,1  | 8,5  | 7,9  | 7,4  | 7,0  | 6,6  | 6,1  | 5,8  | 5,5  | 5,3  | 5,0  |
| 840  | 10,9 | 11,2 | 11,3 | 11,2 | 11,1 | 11,0 | 10,7 | 10,2 | 9,9  | 9,4  | 8,8  | 8,2  | 7,7  | 7,3  | 6,8  | 6,5  | 6,1  | 5,7  | 5,5  |
| 860  | 10,7 | 10,9 | 11,1 | 11,4 | 11,3 | 11,3 | 11,2 | 10,7 | 10,4 | 9,9  | 9,6  | 9,2  | 8,5  | 7,9  | 7,5  | 7,0  | 6,7  | 6,4  | 5,9  |
| 880  | 9,8  | 10,4 | 10,8 | 11,0 | 11,3 | 11,2 | 11,2 | 11,2 | 10,9 | 10,5 | 10,3 | 9,8  | 9,3  | 8,7  | 8,2  | 7,8  | 7,3  | 6,9  | 6,6  |
| 900  | 9,1  | 9,7  | 10,1 | 10,6 | 11,0 | 11,2 | 11,2 | 11,2 | 11,0 | 10,9 | 10,7 | 10,2 | 10,0 | 9,4  | 9,0  | 8,5  | 8,0  | 7,6  | 7,2  |
| 920  | 8,0  | 8,7  | 9,3  | 9,9  | 10,3 | 10,8 | 11,0 | 11,1 | 11,2 | 11,2 | 11,0 | 10,7 | 10,4 | 10,1 | 9,8  | 9,2  | 8,7  | 8,3  | 7,8  |
| 940  | 7,0  | 7,7  | 8,2  | 8,8  | 9,5  | 10,1 | 10,4 | 10,9 | 11,0 | 11,2 | 11,2 | 11,0 | 10,7 | 10,5 | 10,2 | 9,8  | 9,4  | 8,8  | 8,5  |
| 960  | 5,7  | 6,5  | 7,3  | 8,1  | 8,6  | 9,3  | 9,8  | 10,2 | 10,6 | 10,8 | 11,1 | 11,2 | 10,9 | 10,8 | 10,5 | 10,2 | 10,0 | 9,5  | 9,1  |
| 980  | 4,7  | 5,5  | 6,2  | 7,0  | 7,7  | 8,3  | 8,9  | 9,5  | 10,0 | 10,4 | 10,6 | 10,8 | 11,0 | 10,9 | 10,7 | 10,3 | 10,2 | 9,9  | 9,6  |
| 1000 | 4,0  | 4,5  | 5,2  | 5,9  | 6,6  | 7,3  | 8,0  | 8,5  | 9,0  | 9,5  | 10,0 | 10,4 | 10,7 | 10,9 | 10,8 | 10,6 | 10,4 | 10,3 | 10,0 |
|      | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  |



TABLE XII.

Perturbations produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 610  | 620  | 630  | 640 | 650 | 660 | 670 | 680 | 690 | 700 | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  |
|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| 0    | 10,0 | 9,7  | 9,2  | 8,9 | 8,5 | 8,1 | 7,9 | 7,7 | 7,4 | 6,9 | 6,8  | 6,7  | 6,4  | 6,1  | 5,8  | 5,5  | 5,2  | 4,8  | 4,4  |
| 20   | 10,2 | 9,9  | 9,7  | 9,3 | 9,0 | 8,8 | 8,5 | 8,1 | 7,8 | 7,4 | 7,0  | 7,1  | 6,9  | 6,7  | 6,4  | 6,1  | 5,8  | 5,5  | 5,1  |
| 40   | 10,3 | 10,2 | 9,9  | 9,6 | 9,4 | 9,1 | 8,9 | 8,5 | 8,3 | 7,8 | 7,5  | 7,2  | 7,1  | 7,0  | 6,9  | 6,6  | 6,4  | 6,1  | 5,8  |
| 60   | 10,3 | 10,2 | 10,1 | 9,9 | 9,6 | 9,3 | 9,0 | 8,8 | 8,6 | 8,3 | 8,1  | 7,8  | 7,6  | 7,5  | 7,4  | 7,1  | 6,9  | 6,7  | 6,3  |
| 80   | 9,8  | 10,0 | 9,9  | 9,8 | 9,7 | 9,5 | 9,3 | 9,1 | 8,9 | 8,7 | 8,4  | 8,1  | 8,0  | 7,8  | 7,6  | 7,4  | 7,3  | 7,1  | 6,9  |
| 100  | 9,4  | 9,6  | 9,7  | 9,8 | 9,7 | 9,7 | 9,5 | 9,2 | 8,9 | 8,8 | 8,7  | 8,6  | 8,3  | 8,0  | 7,7  | 7,6  | 7,6  | 7,6  | 7,3  |
| 120  | 8,6  | 9,0  | 9,2  | 9,4 | 9,5 | 9,5 | 9,4 | 9,3 | 9,2 | 9,0 | 8,7  | 8,6  | 8,4  | 8,2  | 8,1  | 7,9  | 7,8  | 7,7  | 7,6  |
| 140  | 8,0  | 8,3  | 8,7  | 8,9 | 9,1 | 9,2 | 9,3 | 9,3 | 9,2 | 9,0 | 9,0  | 8,7  | 8,5  | 8,4  | 8,3  | 8,0  | 7,8  | 7,7  | 7,7  |
| 160  | 7,4  | 7,7  | 8,0  | 8,4 | 8,5 | 8,8 | 8,9 | 9,0 | 9,0 | 8,9 | 8,8  | 8,7  | 8,6  | 8,5  | 8,4  | 8,2  | 8,0  | 7,9  | 7,8  |
| 180  | 6,7  | 7,1  | 7,2  | 7,7 | 8,1 | 8,1 | 8,4 | 8,6 | 8,6 | 8,7 | 8,7  | 8,7  | 8,6  | 8,5  | 8,3  | 8,3  | 8,0  | 8,2  | 7,8  |
| 200  | 6,1  | 6,5  | 6,7  | 7,1 | 7,3 | 7,7 | 7,8 | 8,0 | 8,2 | 8,3 | 8,3  | 8,5  | 8,4  | 8,4  | 8,4  | 8,2  | 8,1  | 8,1  | 8,1  |
| 220  | 5,7  | 6,0  | 6,3  | 6,6 | 6,8 | 7,0 | 7,3 | 7,5 | 7,7 | 7,9 | 8,1  | 8,2  | 8,2  | 8,1  | 8,2  | 8,2  | 8,0  | 8,1  | 8,0  |
| 240  | 5,5  | 5,7  | 5,9  | 6,1 | 6,4 | 6,6 | 6,8 | 7,1 | 7,2 | 7,4 | 7,5  | 7,6  | 7,7  | 7,8  | 7,8  | 7,9  | 8,0  | 8,0  | 7,8  |
| 260  | 5,5  | 5,5  | 5,7  | 5,8 | 6,0 | 6,3 | 6,4 | 6,5 | 6,7 | 6,9 | 7,1  | 7,2  | 7,3  | 7,4  | 7,5  | 7,6  | 7,6  | 7,7  | 7,7  |
| 280  | 5,8  | 5,8  | 5,9  | 5,9 | 5,9 | 6,0 | 6,1 | 6,2 | 6,3 | 6,5 | 6,7  | 6,7  | 6,9  | 7,1  | 7,2  | 7,3  | 7,3  | 7,3  | 7,3  |
| 300  | 6,1  | 6,2  | 6,1  | 6,0 | 5,9 | 5,9 | 6,0 | 6,1 | 6,0 | 6,2 | 6,4  | 6,4  | 6,5  | 6,6  | 6,7  | 6,9  | 6,9  | 6,9  | 7,1  |
| 320  | 6,5  | 6,6  | 6,5  | 6,5 | 6,3 | 6,1 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0  | 6,2  | 6,1  | 6,2  | 6,3  | 6,5  | 6,5  | 6,6  | 6,6  |
| 340  | 6,9  | 6,8  | 6,9  | 6,9 | 6,8 | 6,6 | 6,5 | 6,3 | 6,2 | 6,0 | 6,0  | 6,0  | 6,0  | 6,1  | 6,1  | 6,2  | 6,2  | 6,3  | 6,3  |
| 360  | 7,3  | 7,4  | 7,3  | 7,3 | 7,1 | 7,1 | 7,0 | 6,7 | 6,6 | 6,4 | 6,1  | 6,0  | 5,9  | 6,0  | 5,9  | 5,9  | 5,9  | 6,0  | 6,1  |
| 380  | 7,6  | 7,7  | 7,7  | 7,7 | 7,6 | 7,5 | 7,4 | 7,2 | 7,1 | 6,8 | 6,6  | 6,4  | 6,2  | 6,1  | 5,9  | 5,8  | 5,7  | 5,6  | 5,8  |
| 400  | 7,9  | 8,0  | 8,0  | 8,1 | 8,1 | 8,1 | 7,9 | 7,8 | 7,7 | 7,4 | 7,1  | 6,8  | 6,6  | 6,4  | 6,1  | 6,0  | 5,8  | 5,6  | 5,5  |
| 420  | 7,8  | 8,0  | 8,2  | 8,3 | 8,4 | 8,4 | 8,5 | 8,4 | 8,2 | 8,0 | 7,8  | 7,5  | 7,2  | 6,8  | 6,5  | 6,2  | 6,0  | 5,7  | 5,5  |
| 440  | 7,5  | 7,9  | 8,2  | 8,4 | 8,6 | 8,8 | 8,8 | 8,9 | 8,8 | 8,7 | 8,4  | 8,2  | 7,8  | 7,5  | 7,1  | 6,6  | 6,2  | 6,0  | 5,7  |
| 460  | 7,2  | 7,6  | 8,0  | 8,4 | 8,7 | 9,0 | 9,1 | 9,2 | 9,2 | 9,2 | 9,0  | 8,8  | 8,5  | 8,2  | 7,9  | 7,5  | 6,9  | 6,5  | 6,3  |
| 480  | 7,1  | 7,2  | 7,6  | 7,9 | 8,5 | 8,9 | 9,2 | 9,3 | 9,5 | 9,6 | 9,6  | 9,4  | 9,2  | 9,1  | 8,6  | 8,3  | 7,8  | 7,2  | 6,9  |
| 500  | 6,4  | 6,9  | 7,2  | 7,7 | 7,9 | 8,4 | 9,0 | 9,4 | 9,6 | 9,8 | 10,0 | 9,9  | 9,8  | 9,6  | 9,4  | 9,1  | 8,7  | 8,2  | 7,6  |
| 520  | 5,9  | 6,3  | 6,7  | 7,0 | 7,6 | 8,0 | 8,4 | 9,0 | 9,5 | 9,8 | 10,1 | 10,2 | 10,3 | 10,3 | 10,0 | 9,8  | 9,5  | 9,1  | 8,5  |
| 540  | 5,4  | 5,6  | 6,0  | 6,4 | 6,7 | 7,5 | 8,1 | 8,5 | 9,1 | 9,5 | 10,0 | 10,3 | 10,5 | 10,6 | 10,6 | 10,4 | 10,1 | 9,8  | 9,5  |
| 560  | 4,8  | 5,0  | 5,3  | 5,8 | 6,2 | 6,6 | 7,1 | 7,8 | 8,5 | 9,0 | 9,5  | 9,9  | 10,4 | 10,8 | 10,8 | 10,9 | 10,8 | 10,6 | 10,2 |
| 580  | 4,3  | 4,5  | 4,7  | 5,2 | 5,5 | 5,9 | 6,4 | 6,9 | 7,6 | 8,3 | 9,0  | 9,7  | 10,0 | 10,4 | 10,7 | 11,1 | 11,2 | 11,0 | 11,0 |
| 600  | 4,0  | 4,1  | 4,2  | 4,5 | 4,8 | 5,1 | 5,7 | 6,2 | 6,8 | 7,4 | 8,0  | 8,9  | 9,6  | 10,1 | 10,4 | 10,9 | 11,3 | 11,4 | 11,3 |
| 620  | 3,8  | 3,8  | 3,8  | 3,8 | 4,0 | 4,4 | 4,9 | 5,4 | 5,9 | 6,5 | 7,1  | 7,8  | 8,6  | 9,4  | 10,3 | 10,6 | 11,0 | 11,5 | 11,7 |
| 640  | 3,8  | 3,7  | 3,5  | 3,5 | 3,6 | 3,8 | 4,0 | 4,5 | 5,0 | 5,5 | 6,2  | 6,8  | 7,6  | 8,4  | 9,2  | 10,0 | 10,7 | 11,1 | 11,6 |
| 660  | 3,5  | 3,5  | 3,4  | 3,3 | 3,3 | 3,4 | 3,5 | 3,7 | 4,1 | 4,7 | 5,2  | 5,9  | 6,5  | 7,3  | 8,3  | 9,1  | 9,8  | 10,5 | 11,2 |
| 680  | 3,5  | 3,4  | 3,3  | 3,2 | 3,1 | 3,1 | 3,1 | 3,1 | 3,4 | 3,8 | 4,3  | 4,8  | 5,5  | 6,2  | 7,0  | 7,8  | 8,7  | 9,6  | 10,2 |
| 700  | 3,5  | 3,4  | 3,3  | 3,2 | 3,0 | 3,0 | 3,0 | 2,9 | 2,8 | 3,0 | 3,4  | 3,9  | 4,5  | 5,2  | 6,0  | 6,7  | 7,5  | 8,5  | 9,4  |
| 720  | 3,8  | 3,5  | 3,4  | 3,1 | 2,9 | 2,9 | 2,7 | 2,7 | 2,6 | 2,5 | 2,7  | 3,1  | 3,5  | 4,0  | 4,8  | 5,6  | 6,4  | 7,3  | 8,2  |
| 740  | 3,7  | 3,6  | 3,4  | 3,3 | 3,0 | 2,8 | 2,6 | 2,5 | 2,4 | 2,4 | 2,4  | 2,5  | 2,7  | 3,1  | 3,6  | 4,5  | 5,2  | 6,1  | 6,9  |
| 760  | 4,1  | 3,8  | 3,6  | 3,3 | 3,1 | 2,9 | 2,8 | 2,5 | 2,3 | 2,2 | 2,1  | 2,1  | 2,3  | 2,4  | 2,8  | 3,2  | 4,1  | 4,7  | 5,7  |
| 780  | 4,3  | 4,1  | 3,9  | 3,8 | 3,4 | 3,2 | 3,0 | 2,7 | 2,5 | 2,3 | 2,1  | 2,0  | 1,9  | 2,1  | 2,2  | 2,5  | 2,9  | 3,6  | 4,4  |
| 800  | 4,5  | 4,4  | 4,3  | 4,1 | 3,8 | 3,5 | 3,1 | 2,8 | 2,7 | 2,4 | 2,2  | 2,0  | 1,8  | 1,8  | 1,8  | 2,0  | 2,3  | 2,5  | 3,2  |
| 820  | 5,0  | 4,8  | 4,6  | 4,4 | 4,2 | 4,0 | 3,6 | 3,3 | 3,0 | 2,7 | 2,3  | 2,1  | 1,9  | 1,8  | 1,5  | 1,7  | 1,7  | 2,0  | 2,2  |
| 840  | 5,5  | 5,2  | 5,0  | 4,7 | 4,6 | 4,3 | 4,1 | 3,8 | 3,5 | 3,0 | 2,6  | 2,3  | 2,1  | 1,9  | 1,6  | 1,5  | 1,5  | 1,6  | 1,7  |
| 860  | 5,9  | 5,8  | 5,4  | 5,1 | 5,0 | 4,8 | 4,6 | 4,4 | 4,0 | 3,5 | 3,2  | 2,8  | 2,3  | 1,9  | 1,7  | 1,4  | 1,3  | 1,2  | 1,4  |
| 880  | 6,6  | 6,3  | 6,0  | 5,7 | 5,4 | 5,2 | 5,0 | 4,7 | 4,4 | 4,1 | 3,7  | 3,3  | 3,0  | 2,5  | 2,1  | 1,7  | 1,4  | 1,3  | 1,2  |
| 900  | 7,2  | 6,8  | 6,6  | 6,3 | 5,9 | 5,6 | 5,4 | 5,2 | 5,0 | 4,6 | 4,3  | 4,0  | 3,6  | 3,2  | 2,7  | 2,2  | 1,6  | 1,3  | 1,2  |
| 920  | 7,8  | 7,4  | 7,0  | 6,7 | 6,4 | 6,0 | 5,8 | 5,7 | 5,3 | 5,1 | 5,0  | 4,6  | 4,2  | 3,8  | 3,4  | 2,9  | 2,3  | 1,9  | 1,3  |
| 940  | 8,5  | 8,0  | 7,6  | 7,3 | 6,9 | 6,6 | 6,2 | 6,1 | 5,9 | 5,6 | 5,4  | 5,2  | 4,8  | 4,5  | 3,9  | 3,5  | 3,1  | 2,6  | 2,1  |
| 960  | 9,1  | 8,6  | 8,2  | 7,8 | 7,5 | 7,1 | 6,8 | 6,6 | 6,4 | 6,2 | 5,9  | 5,6  | 5,4  | 5,1  | 4,7  | 4,3  | 3,7  | 3,2  | 2,8  |
| 980  | 9,6  | 9,2  | 9,0  | 8,5 | 8,0 | 7,7 | 7,4 | 7,2 | 6,9 | 6,6 | 6,4  | 6,2  | 5,9  | 5,6  | 5,3  | 5,0  | 4,6  | 4,0  | 3,5  |
| 1000 | 10,0 | 9,7  | 9,2  | 8,9 | 8,5 | 8,1 | 7,9 | 7,7 | 7,4 | 6,9 | 6,8  | 6,7  | 6,4  | 6,1  | 5,8  | 5,5  | 5,2  | 4,8  | 4,4  |
|      | 610  | 620  | 630  | 640 | 650 | 660 | 670 | 680 | 690 | 700 | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  |



TABLE XII.

Perturbations produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 4,4  | 3,7  | 3,2  | 2,6  | 2,1  | 1,7  | 1,3  | 0,9  | 0,7  | 0,7  | 1,0  | 1,2  | 1,6  | 2,2  | 3,0  | 3,8  | 4,8  | 5,8  | 6,9  |
| 20   | 5,1  | 4,7  | 4,2  | 3,6  | 3,1  | 2,4  | 1,9  | 1,5  | 1,2  | 0,8  | 0,6  | 0,9  | 1,2  | 1,5  | 2,1  | 2,6  | 3,4  | 4,4  | 5,5  |
| 40   | 5,8  | 5,3  | 4,9  | 4,5  | 3,8  | 3,3  | 2,7  | 2,0  | 1,7  | 1,4  | 1,0  | 0,8  | 0,9  | 1,0  | 1,4  | 1,8  | 2,5  | 3,2  | 4,0  |
| 60   | 6,3  | 6,0  | 5,7  | 5,2  | 4,7  | 4,1  | 3,6  | 3,1  | 2,6  | 2,0  | 1,5  | 1,2  | 0,9  | 1,0  | 1,1  | 1,3  | 1,8  | 2,3  | 3,0  |
| 80   | 6,9  | 6,5  | 6,3  | 6,0  | 5,5  | 5,0  | 4,6  | 4,0  | 3,4  | 2,7  | 2,2  | 1,8  | 1,5  | 1,3  | 1,1  | 1,2  | 1,4  | 1,6  | 2,1  |
| 100  | 7,3  | 7,0  | 6,7  | 6,5  | 6,3  | 5,9  | 5,3  | 4,9  | 4,4  | 3,7  | 3,1  | 2,5  | 2,1  | 1,7  | 1,3  | 1,2  | 1,2  | 1,3  | 1,6  |
| 120  | 7,6  | 7,5  | 7,3  | 7,0  | 6,8  | 6,5  | 6,2  | 5,7  | 5,1  | 4,7  | 4,1  | 3,5  | 2,9  | 2,4  | 2,0  | 1,5  | 1,4  | 1,4  | 1,4  |
| 140  | 7,7  | 7,7  | 7,7  | 7,5  | 7,3  | 7,0  | 6,7  | 6,4  | 6,0  | 5,6  | 5,1  | 4,5  | 3,8  | 3,3  | 2,8  | 2,3  | 2,0  | 1,7  | 1,5  |
| 160  | 7,8  | 7,8  | 7,9  | 7,7  | 7,6  | 7,4  | 7,2  | 7,0  | 6,8  | 6,3  | 5,8  | 5,4  | 4,8  | 4,2  | 3,6  | 3,1  | 2,6  | 2,1  | 2,0  |
| 180  | 7,8  | 7,9  | 7,8  | 7,9  | 7,9  | 7,7  | 7,6  | 7,5  | 7,1  | 7,0  | 6,6  | 6,1  | 5,7  | 5,2  | 4,6  | 4,0  | 3,5  | 3,1  | 2,5  |
| 200  | 8,1  | 7,9  | 7,9  | 7,8  | 7,9  | 7,8  | 7,7  | 7,6  | 7,5  | 7,5  | 7,1  | 6,8  | 6,3  | 6,1  | 5,5  | 5,0  | 4,4  | 3,9  | 3,5  |
| 220  | 8,0  | 8,0  | 7,9  | 7,8  | 7,8  | 7,8  | 7,8  | 7,8  | 7,8  | 7,6  | 7,5  | 7,4  | 7,1  | 6,7  | 6,3  | 5,8  | 5,4  | 4,9  | 4,4  |
| 240  | 7,8  | 7,8  | 7,7  | 7,7  | 7,7  | 7,7  | 7,7  | 7,8  | 7,8  | 7,7  | 7,6  | 7,6  | 7,5  | 7,2  | 6,9  | 6,6  | 6,1  | 5,6  | 5,3  |
| 260  | 7,7  | 7,8  | 7,7  | 7,7  | 7,6  | 7,7  | 7,7  | 7,7  | 7,7  | 7,7  | 7,7  | 7,8  | 7,8  | 7,6  | 7,5  | 7,1  | 6,8  | 6,5  | 6,0  |
| 280  | 7,3  | 7,4  | 7,4  | 7,5  | 7,5  | 7,5  | 7,5  | 7,5  | 7,5  | 7,5  | 7,6  | 7,6  | 7,8  | 7,7  | 7,7  | 7,5  | 7,3  | 7,1  | 6,7  |
| 300  | 7,1  | 7,1  | 7,2  | 7,3  | 7,3  | 7,3  | 7,3  | 7,3  | 7,4  | 7,5  | 7,4  | 7,5  | 7,5  | 7,7  | 7,7  | 7,7  | 7,7  | 7,4  | 7,2  |
| 320  | 6,6  | 6,8  | 6,9  | 6,8  | 7,0  | 7,1  | 7,1  | 7,1  | 7,1  | 7,3  | 7,3  | 7,3  | 7,4  | 7,4  | 7,4  | 7,6  | 7,7  | 7,6  | 7,6  |
| 340  | 6,3  | 6,4  | 6,5  | 6,6  | 6,6  | 6,7  | 6,7  | 6,8  | 6,9  | 7,0  | 7,1  | 7,2  | 7,2  | 7,2  | 7,2  | 7,3  | 7,5  | 7,7  | 7,6  |
| 360  | 6,1  | 6,2  | 6,2  | 6,2  | 6,3  | 6,4  | 6,4  | 6,5  | 6,6  | 6,7  | 6,7  | 6,9  | 6,9  | 7,1  | 7,1  | 7,1  | 7,2  | 7,2  | 7,6  |
| 380  | 5,8  | 5,9  | 5,8  | 5,8  | 5,9  | 6,0  | 6,1  | 6,2  | 6,3  | 6,4  | 6,4  | 6,4  | 6,6  | 6,8  | 6,9  | 7,0  | 7,0  | 7,0  | 7,1  |
| 400  | 5,5  | 5,6  | 5,6  | 5,6  | 5,7  | 5,7  | 5,7  | 5,8  | 5,9  | 5,9  | 6,0  | 6,1  | 6,2  | 6,4  | 6,6  | 6,6  | 6,7  | 6,7  | 6,9  |
| 420  | 5,5  | 5,4  | 5,4  | 5,5  | 5,5  | 5,5  | 5,5  | 5,5  | 5,5  | 5,6  | 5,6  | 5,6  | 5,7  | 5,8  | 5,9  | 6,2  | 6,3  | 6,6  | 6,5  |
| 440  | 5,7  | 5,6  | 5,3  | 5,3  | 5,3  | 5,3  | 5,2  | 5,2  | 5,2  | 5,2  | 5,1  | 5,0  | 5,3  | 5,5  | 5,6  | 5,7  | 5,8  | 6,0  | 6,1  |
| 460  | 6,3  | 6,0  | 5,6  | 5,4  | 5,3  | 5,2  | 5,2  | 5,1  | 5,0  | 5,1  | 5,2  | 5,2  | 5,2  | 5,3  | 5,3  | 5,4  | 5,7  | 5,7  | 5,7  |
| 480  | 6,9  | 6,5  | 6,0  | 5,7  | 5,4  | 5,2  | 5,2  | 5,1  | 4,9  | 4,9  | 4,9  | 4,9  | 5,0  | 5,0  | 5,0  | 5,0  | 5,1  | 5,3  | 5,4  |
| 500  | 7,6  | 7,2  | 6,8  | 6,3  | 5,9  | 5,6  | 5,3  | 5,0  | 4,8  | 4,9  | 4,8  | 4,8  | 4,8  | 4,9  | 4,9  | 5,0  | 5,0  | 5,0  | 5,1  |
| 520  | 8,5  | 8,0  | 7,4  | 7,0  | 6,5  | 6,1  | 5,5  | 5,4  | 5,1  | 4,9  | 4,7  | 4,7  | 4,7  | 4,8  | 4,8  | 4,8  | 4,8  | 4,8  | 4,7  |
| 540  | 9,5  | 9,0  | 8,4  | 7,8  | 7,3  | 6,7  | 6,3  | 5,8  | 5,4  | 5,2  | 4,9  | 4,7  | 4,7  | 4,7  | 4,7  | 4,6  | 4,6  | 4,6  | 4,5  |
| 560  | 10,2 | 9,9  | 9,5  | 8,8  | 8,2  | 7,7  | 7,1  | 6,5  | 6,0  | 5,7  | 5,3  | 5,0  | 4,8  | 4,6  | 4,5  | 4,5  | 4,4  | 4,5  | 4,5  |
| 580  | 11,0 | 10,6 | 10,2 | 9,8  | 9,3  | 8,8  | 8,1  | 7,2  | 6,8  | 6,4  | 6,0  | 5,6  | 5,1  | 4,9  | 4,7  | 4,6  | 4,5  | 4,4  | 4,4  |
| 600  | 11,3 | 11,2 | 11,0 | 10,7 | 10,3 | 9,6  | 9,1  | 8,5  | 7,7  | 7,1  | 6,4  | 6,1  | 5,6  | 5,3  | 4,9  | 4,8  | 4,7  | 4,5  | 4,4  |
| 620  | 11,7 | 11,7 | 11,5 | 11,4 | 11,0 | 10,6 | 9,9  | 9,5  | 8,9  | 8,1  | 7,4  | 6,8  | 6,3  | 5,9  | 5,5  | 5,1  | 4,8  | 4,6  | 4,5  |
| 640  | 11,6 | 11,8 | 11,9 | 11,8 | 11,7 | 11,3 | 11,0 | 10,4 | 9,8  | 9,3  | 8,5  | 7,8  | 7,1  | 6,6  | 6,1  | 5,6  | 5,4  | 5,0  | 4,7  |
| 660  | 11,2 | 11,5 | 11,8 | 12,0 | 12,1 | 11,9 | 11,6 | 11,2 | 10,8 | 10,2 | 9,6  | 8,9  | 8,2  | 7,5  | 6,8  | 6,3  | 5,9  | 5,5  | 5,3  |
| 680  | 10,2 | 11,0 | 11,6 | 12,1 | 12,2 | 12,1 | 12,2 | 12,1 | 11,5 | 11,1 | 10,6 | 10,1 | 9,2  | 8,5  | 7,8  | 7,3  | 6,5  | 6,1  | 5,6  |
| 700  | 9,4  | 10,1 | 10,9 | 11,6 | 12,1 | 12,4 | 12,3 | 12,3 | 12,3 | 11,9 | 11,4 | 10,8 | 10,4 | 9,7  | 8,9  | 8,1  | 7,6  | 7,0  | 6,3  |
| 720  | 8,2  | 9,1  | 10,0 | 10,6 | 11,4 | 11,9 | 12,4 | 12,6 | 12,5 | 12,4 | 12,0 | 11,6 | 11,2 | 10,8 | 10,0 | 9,3  | 8,5  | 7,9  | 7,2  |
| 740  | 6,9  | 7,8  | 8,8  | 9,7  | 10,5 | 11,3 | 11,8 | 12,3 | 12,8 | 12,6 | 12,6 | 12,3 | 11,9 | 11,5 | 11,0 | 10,2 | 9,7  | 8,9  | 8,2  |
| 760  | 5,7  | 6,6  | 7,6  | 8,5  | 9,4  | 10,3 | 11,0 | 11,7 | 12,1 | 12,6 | 12,8 | 12,7 | 12,5 | 12,1 | 11,8 | 11,3 | 10,5 | 10,0 | 9,3  |
| 780  | 4,4  | 5,2  | 6,3  | 7,1  | 8,1  | 9,2  | 10,1 | 10,7 | 11,6 | 12,0 | 12,4 | 12,8 | 12,9 | 12,8 | 12,3 | 11,9 | 11,4 | 10,9 | 10,2 |
| 800  | 3,2  | 4,0  | 4,8  | 5,7  | 6,7  | 7,7  | 8,7  | 9,7  | 10,5 | 11,3 | 11,9 | 12,3 | 12,5 | 12,9 | 12,9 | 12,5 | 12,1 | 11,7 | 11,2 |
| 820  | 2,2  | 2,9  | 3,6  | 4,4  | 5,4  | 6,4  | 7,3  | 8,4  | 9,5  | 10,3 | 11,0 | 11,7 | 12,1 | 12,5 | 12,7 | 12,8 | 12,7 | 12,2 | 11,9 |
| 840  | 1,7  | 2,2  | 2,7  | 3,3  | 4,0  | 4,9  | 6,0  | 7,0  | 8,0  | 9,1  | 10,0 | 10,8 | 11,4 | 12,0 | 12,4 | 12,6 | 12,8 | 12,6 | 12,4 |
| 860  | 1,4  | 1,6  | 1,6  | 2,2  | 2,9  | 3,6  | 4,6  | 5,6  | 6,6  | 7,6  | 8,6  | 9,6  | 10,5 | 11,2 | 11,8 | 12,3 | 12,5 | 12,7 | 12,5 |
| 880  | 1,2  | 1,2  | 1,3  | 1,5  | 1,9  | 2,6  | 3,3  | 4,1  | 5,2  | 6,1  | 7,1  | 8,2  | 9,2  | 10,1 | 11,0 | 11,5 | 12,1 | 12,3 | 12,6 |
| 900  | 1,2  | 1,1  | 1,1  | 1,2  | 1,3  | 1,7  | 2,2  | 2,9  | 3,8  | 4,8  | 5,7  | 6,8  | 7,9  | 8,8  | 9,8  | 10,6 | 11,3 | 11,8 | 12,2 |
| 920  | 1,3  | 1,1  | 1,0  | 1,0  | 1,1  | 1,1  | 1,4  | 1,9  | 2,6  | 3,4  | 4,4  | 5,3  | 6,3  | 7,4  | 8,4  | 9,3  | 10,2 | 11,0 | 11,5 |
| 940  | 2,1  | 1,5  | 1,1  | 0,8  | 0,9  | 1,0  | 1,1  | 1,3  | 1,6  | 2,3  | 3,1  | 3,9  | 5,0  | 5,9  | 7,1  | 8,1  | 8,9  | 9,9  | 10,7 |
| 960  | 2,8  | 2,3  | 1,7  | 1,3  | 0,9  | 0,7  | 0,8  | 0,9  | 1,2  | 1,4  | 2,0  | 2,8  | 3,5  | 4,6  | 5,6  | 6,7  | 7,7  | 8,7  | 9,4  |
| 980  | 3,5  | 3,0  | 2,5  | 1,9  | 1,4  | 1,2  | 1,0  | 0,8  | 0,9  | 1,2  | 1,4  | 1,7  | 2,4  | 3,3  | 4,2  | 5,2  | 6,2  | 7,3  | 8,2  |
| 1000 | 4,4  | 3,7  | 3,2  | 2,6  | 2,1  | 1,7  | 1,3  | 0,9  | 0,7  | 0,7  | 1,0  | 1,2  | 1,6  | 2,2  | 3,0  | 3,8  | 4,8  | 5,8  | 6,9  |
|      | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  |



TABLE XII.

Perturb. prod. by *Mars*.

ARGUMENTS. B &amp; D.

D

| B    | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|
| 0    | 6,9  | 7,8  | 8,4  | 9,5  |
| 20   | 5,5  | 6,5  | 7,6  | 8,7  |
| 40   | 4,0  | 5,2  | 6,0  | 7,1  |
| 60   | 3,0  | 3,7  | 4,8  | 5,8  |
| 80   | 2,1  | 2,7  | 3,6  | 4,5  |
| 100  | 1,6  | 2,0  | 2,6  | 3,3  |
| 120  | 1,4  | 1,7  | 1,9  | 2,4  |
| 140  | 1,5  | 1,5  | 1,8  | 2,1  |
| 160  | 2,0  | 1,7  | 1,7  | 1,9  |
| 180  | 2,5  | 2,0  | 2,0  | 1,9  |
| 200  | 3,5  | 2,8  | 2,7  | 2,9  |
| 220  | 4,4  | 3,9  | 3,2  | 3,0  |
| 240  | 5,3  | 4,8  | 4,2  | 3,7  |
| 260  | 6,0  | 5,6  | 5,2  | 4,8  |
| 280  | 6,7  | 6,3  | 5,9  | 5,5  |
| 300  | 7,2  | 7,0  | 6,6  | 6,1  |
| 320  | 7,6  | 7,3  | 7,1  | 6,9  |
| 340  | 7,6  | 7,6  | 7,6  | 7,7  |
| 360  | 7,6  | 7,6  | 7,6  | 7,5  |
| 380  | 7,1  | 7,3  | 7,5  | 7,5  |
| 400  | 6,9  | 7,0  | 7,1  | 7,3  |
| 420  | 6,5  | 6,7  | 6,7  | 6,9  |
| 440  | 6,1  | 6,3  | 6,5  | 6,5  |
| 460  | 5,7  | 5,9  | 6,1  | 6,2  |
| 480  | 5,4  | 5,5  | 5,6  | 5,8  |
| 500  | 5,1  | 5,2  | 5,3  | 5,3  |
| 520  | 4,7  | 4,9  | 5,0  | 5,1  |
| 540  | 4,5  | 4,6  | 4,6  | 4,7  |
| 560  | 4,5  | 4,5  | 4,5  | 4,4  |
| 580  | 4,4  | 4,4  | 4,4  | 4,2  |
| 600  | 4,4  | 4,4  | 4,3  | 4,1  |
| 620  | 4,5  | 4,4  | 4,3  | 4,2  |
| 640  | 4,7  | 4,6  | 4,5  | 4,3  |
| 660  | 5,3  | 4,9  | 4,8  | 4,6  |
| 680  | 5,6  | 5,4  | 5,1  | 4,8  |
| 700  | 6,3  | 5,9  | 5,6  | 5,3  |
| 720  | 7,2  | 6,6  | 6,1  | 5,8  |
| 740  | 8,2  | 7,6  | 6,9  | 6,5  |
| 760  | 9,3  | 8,5  | 7,9  | 7,3  |
| 780  | 10,2 | 9,6  | 9,0  | 8,2  |
| 800  | 11,2 | 10,5 | 9,8  | 9,2  |
| 820  | 11,9 | 11,2 | 10,7 | 10,1 |
| 840  | 12,4 | 12,2 | 11,5 | 10,9 |
| 860  | 12,5 | 12,5 | 12,3 | 11,7 |
| 880  | 12,6 | 12,6 | 12,4 | 12,3 |
| 900  | 12,2 | 12,4 | 12,5 | 12,4 |
| 920  | 11,5 | 12,1 | 12,2 | 12,3 |
| 940  | 10,7 | 11,2 | 11,7 | 12,1 |
| 960  | 9,4  | 10,2 | 10,9 | 11,4 |
| 980  | 8,2  | 8,9  | 9,9  | 10,6 |
| 1000 | 6,9  | 7,8  | 8,7  | 9,5  |
| 970  | 980  | 990  | 1000 |      |

TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 15,3 | 15,1 | 15,0 | 15,0 | 14,8 | 14,7 | 14,7 | 14,6 | 14,5 | 14,5 | 14,4 | 14,5 | 14,5 | 14,6 | 14,7 |
| 14,9 | 14,9 | 14,7 | 14,8 | 14,7 | 14,6 | 14,4 | 14,4 | 14,2 | 14,2 | 14,1 | 14,1 | 14,1 | 14,1 | 14,1 |
| 14,7 | 14,6 | 14,6 | 14,5 | 14,4 | 14,4 | 14,3 | 14,2 | 14,1 | 13,9 | 13,8 | 13,8 | 13,8 | 13,8 | 13,8 |
| 14,4 | 14,4 | 14,4 | 14,4 | 14,3 | 14,3 | 14,2 | 14,1 | 13,9 | 13,8 | 13,6 | 13,5 | 13,5 | 13,5 | 13,4 |
| 13,4 | 13,9 | 14,0 | 14,2 | 14,2 | 14,1 | 14,5 | 14,0 | 13,8 | 13,7 | 13,5 | 13,4 | 13,2 | 13,1 | 13,0 |
| 13,2 | 13,4 | 13,6 | 13,7 | 13,7 | 13,9 | 13,9 | 13,8 | 13,7 | 13,6 | 13,5 | 13,4 | 13,2 | 13,0 | 12,8 |
| 12,3 | 12,7 | 13,0 | 13,3 | 13,4 | 13,4 | 13,5 | 13,6 | 13,5 | 13,5 | 13,3 | 13,3 | 13,2 | 13,0 | 12,8 |
| 11,3 | 11,8 | 12,1 | 12,5 | 12,8 | 13,0 | 13,1 | 13,2 | 13,2 | 13,3 | 13,2 | 13,1 | 13,0 | 12,9 | 12,8 |
| 10,2 | 10,7 | 11,2 | 11,7 | 12,0 | 12,4 | 12,6 | 12,7 | 12,8 | 12,9 | 12,9 | 13,0 | 12,9 | 12,8 | 12,7 |
| 9,1  | 9,6  | 10,1 | 10,7 | 11,1 | 11,6 | 11,9 | 12,2 | 12,3 | 12,5 | 12,5 | 12,6 | 12,7 | 12,8 | 12,6 |
| 7,8  | 8,3  | 8,9  | 9,5  | 10,0 | 10,6 | 11,0 | 11,5 | 11,7 | 11,9 | 12,2 | 12,2 | 12,3 | 12,4 | 12,3 |
| 6,8  | 7,2  | 7,7  | 8,3  | 8,8  | 9,5  | 9,9  | 10,4 | 10,8 | 11,3 | 11,5 | 11,8 | 11,9 | 12,0 | 12,0 |
| 5,7  | 6,2  | 6,6  | 7,2  | 7,7  | 8,2  | 8,9  | 9,4  | 9,8  | 10,3 | 10,6 | 11,0 | 11,3 | 11,5 | 11,7 |
| 4,8  | 5,2  | 5,6  | 6,1  | 6,5  | 7,1  | 7,6  | 8,3  | 8,8  | 9,3  | 9,7  | 10,1 | 10,5 | 10,9 | 11,0 |
| 3,9  | 4,1  | 4,7  | 5,2  | 5,5  | 6,0  | 6,5  | 7,1  | 7,6  | 8,2  | 8,7  | 9,2  | 9,6  | 10,0 | 10,4 |
| 3,4  | 3,5  | 3,9  | 4,3  | 4,7  | 5,1  | 5,5  | 6,1  | 6,6  | 7,1  | 7,6  | 8,1  | 8,7  | 9,1  | 9,4  |
| 3,2  | 3,1  | 3,4  | 3,6  | 3,9  | 4,3  | 4,6  | 5,1  | 5,4  | 6,0  | 6,6  | 7,2  | 7,7  | 8,1  | 8,5  |
| 3,2  | 3,0  | 3,0  | 3,1  | 3,3  | 3,5  | 3,8  | 4,1  | 4,5  | 5,0  | 5,4  | 6,1  | 6,6  | 7,2  | 7,6  |
| 3,5  | 3,2  | 2,9  | 2,9  | 3,0  | 3,1  | 3,3  | 3,6  | 3,8  | 4,1  | 4,5  | 5,0  | 5,5  | 6,1  | 6,6  |
| 4,5  | 4,0  | 3,4  | 3,1  | 2,8  | 2,8  | 2,7  | 2,8  | 2,9  | 3,0  | 3,2  | 3,5  | 4,1  | 4,6  | 5,0  |
| 5,0  | 4,3  | 3,8  | 3,5  | 3,1  | 2,9  | 2,9  | 2,8  | 2,8  | 3,0  | 3,1  | 3,4  | 3,8  | 4,2  | 4,7  |
| 6,1  | 5,2  | 4,6  | 4,1  | 3,6  | 3,3  | 3,1  | 2,8  | 2,7  | 2,8  | 2,9  | 3,1  | 3,2  | 3,5  | 3,8  |
| 7,5  | 6,6  | 5,8  | 4,9  | 4,4  | 3,9  | 3,4  | 3,1  | 2,7  | 2,8  | 2,7  | 2,8  | 3,1  | 3,1  | 3,2  |
| 9,0  | 7,9  | 7,0  | 6,3  | 5,4  | 4,8  | 4,3  | 3,7  | 3,2  | 2,9  | 2,8  | 2,8  | 2,7  | 2,7  | 2,8  |
| 10,5 | 9,5  | 8,5  | 7,6  | 6,7  | 5,9  | 5,2  | 4,6  | 4,1  | 3,6  | 3,1  | 3,0  | 2,8  | 2,8  | 2,6  |
| 12,3 | 11,3 | 10,0 | 9,1  | 8,1  | 7,2  | 6,4  | 5,7  | 5,0  | 4,4  | 3,9  | 3,4  | 3,2  | 3,1  | 2,9  |
| 14,0 | 12,7 | 11,7 | 10,7 | 9,5  | 8,7  | 7,7  | 6,9  | 6,1  | 5,5  | 4,8  | 4,2  | 3,8  | 3,5  | 3,2  |
| 15,6 | 14,5 | 13,3 | 12,3 | 11,1 | 10,2 | 9,1  | 8,4  | 7,4  | 6,6  | 5,9  | 5,3  | 4,7  | 4,1  | 3,8  |
| 17,1 | 16,1 | 15,1 | 14,0 | 13,0 | 11,9 | 10,8 | 9,9  | 8,7  | 7,9  | 7,1  | 6,4  | 5,8  | 5,2  | 4,5  |
| 18,6 | 17,4 | 16,5 | 15,7 | 14,5 | 13,6 | 12,5 | 11,4 | 10,4 | 9,3  | 8,3  | 7,7  | 6,9  | 6,2  | 5,5  |
| 19,8 | 19,0 | 17,9 | 17,0 | 16,0 | 15,0 | 14,0 | 13,1 | 12,0 | 11,0 | 10,1 | 9,2  | 8,2  | 7,5  | 6,7  |
| 20,8 | 20,1 | 19,2 | 18,4 | 17,4 | 16,5 | 15,5 | 14,7 | 13,6 | 12,6 | 11,6 | 10,7 | 9,8  | 9,0  | 8,0  |
| 21,6 | 20,9 | 20,2 | 19,5 | 18,5 | 17,9 | 17,0 | 16,0 | 15,1 | 14,2 | 13,1 | 12,2 | 11,3 | 10,4 | 9,4  |
| 22,1 | 21,6 | 21,0 | 20,4 | 19,7 | 18,9 | 18,1 | 17,4 | 16,3 | 15,6 | 14,6 | 13,7 | 12,8 | 11,9 | 11,0 |
| 22,3 | 22,0 | 21,6 | 21,2 | 20,5 | 19,9 | 19,1 | 18,5 | 17,6 | 16,8 | 16,0 | 15,1 | 14,2 | 13,5 | 12,5 |
| 22,2 | 22,0 | 21,7 | 21,5 | 21,0 | 20,6 | 20,0 | 19,3 | 18,7 | 18,0 | 17,1 | 16,5 | 15,6 | 14,7 | 13,8 |
| 22,0 | 21,9 | 21,7 | 21,6 | 21,2 | 21,0 | 20,5 | 20,0 | 19,3 | 18,9 | 18,3 | 17,5 | 16,8 | 16,1 | 15,1 |
| 21,6 | 21,6 | 21,5 | 21,5 | 21,2 | 21,1 | 20,8 | 20,5 | 20,0 | 19,4 | 18,9 | 18,4 | 17,7 | 17,2 | 16,8 |
| 21,2 | 21,1 | 21,1 | 21,2 | 21,0 | 21,0 | 20,8 | 20,7 | 20,3 | 20,0 | 19,4 | 19,0 | 18,6 | 17,9 | 17,4 |
| 20,4 | 20,5 | 20,6 | 20,7 | 20,7 | 20,7 | 20,6 | 20,6 | 20,3 | 20,2 | 19,8 | 19,4 | 19,1 | 18,7 | 18,1 |
| 19,6 | 19,8 | 19,9 | 20,1 | 20,2 | 20,3 | 20,3 | 20,4 | 20,3 | 20,1 | 19,9 | 19,7 | 19,3 | 19,1 | 18,7 |
| 18,8 | 19,0 | 19,2 | 19,4 | 19,5 | 19,7 | 19,8 | 19,9 | 19,9 | 19,9 | 19,8 | 19,8 | 19,6 | 19,2 | 18,9 |
| 18,1 | 18,2 | 18,4 | 18,6 | 18,8 | 18,9 | 19,0 | 19,2 | 19,3 | 19,4 | 19,4 | 19,4 | 19,4 | 19,4 | 19,0 |
| 17,4 | 17,5 | 17,6 | 17,9 | 18,0 | 18,3 | 18,4 | 18,6 | 18,7 | 18,8 | 18,9 | 19,0 | 19,1 | 19,1 | 19,0 |
| 16,9 | 16,9 | 16,9 | 17,1 | 17,2 | 17,5 | 17,6 | 17,9 | 18,0 | 18,2 | 18,3 | 18,5 | 18,6 | 18,6 | 18,6 |
| 16,3 | 16,4 | 16,4 | 16,5 | 16,6 | 16,8 | 16,9 | 17,1 | 17,1 | 17,4 | 17,5 | 17,7 | 17,9 | 18,1 | 18,2 |
| 16,0 | 15,9 | 15,9 | 16,0 | 16,0 | 16,1 | 16,2 | 16,4 | 16,5 | 16,7 | 16,8 | 17,0 | 17,2 | 17,4 | 17,5 |
| 15,8 | 15,7 | 15,7 | 15,6 | 15,5 | 15,6 | 15,6 | 15,7 | 15,8 | 16,0 | 16,1 | 16,3 | 16,5 | 16,8 | 16,8 |
| 15,5 | 15,4 | 15,3 | 15,4 | 15,3 | 15,3 | 15,2 | 15,2 | 15,2 | 15,3 | 15,4 | 15,6 | 15,7 | 15,9 | 16,0 |
| 15,3 | 15,2 | 15,2 | 15,1 | 15,0 | 15,0 | 14,9 | 14,9 | 14,8 | 14,9 | 14,9 | 15,0 | 15,2 | 15,3 | 15,3 |
| 15,3 | 15,1 | 15,0 | 15,0 | 14,8 | 14,7 | 14,7 | 14,6 | 14,5 | 14,5 | 14,4 | 14,5 | 14,5 | 14,6 | 14,7 |
| 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  |



TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 14,7 | 14,8 | 15,0 | 15,3 | 15,5 | 15,8 | 15,9 | 16,2 | 16,3 | 16,7 | 17,0 | 17,1 | 17,3 | 17,5 | 17,5 | 17,7 | 17,8 | 17,9 | 17,9 |
| 20   | 14,1 | 14,2 | 14,3 | 14,6 | 14,8 | 14,9 | 15,2 | 15,5 | 15,7 | 15,9 | 16,2 | 16,6 | 16,8 | 17,1 | 17,3 | 17,5 | 17,6 | 17,8 | 17,8 |
| 40   | 13,8 | 13,7 | 13,7 | 13,9 | 14,1 | 14,3 | 14,5 | 14,8 | 15,0 | 15,3 | 15,5 | 15,8 | 16,2 | 16,4 | 16,8 | 16,9 | 17,2 | 17,6 | 17,7 |
| 60   | 13,4 | 13,3 | 13,2 | 13,4 | 13,5 | 13,6 | 13,8 | 14,1 | 14,3 | 14,6 | 14,8 | 15,1 | 15,5 | 15,8 | 16,0 | 16,4 | 16,7 | 16,9 | 17,3 |
| 80   | 13,0 | 13,1 | 13,0 | 13,0 | 13,0 | 13,1 | 13,1 | 13,3 | 13,5 | 13,8 | 14,1 | 14,4 | 14,5 | 15,1 | 15,4 | 15,7 | 16,1 | 16,4 | 16,7 |
| 100  | 12,8 | 12,7 | 12,7 | 12,7 | 12,6 | 12,7 | 12,6 | 12,8 | 12,9 | 13,1 | 13,4 | 13,7 | 14,0 | 14,2 | 14,6 | 15,1 | 15,0 | 15,8 | 16,1 |
| 120  | 12,8 | 12,6 | 12,5 | 12,5 | 12,4 | 12,3 | 12,2 | 12,3 | 12,3 | 12,6 | 12,8 | 13,0 | 13,3 | 13,6 | 13,7 | 14,2 | 14,5 | 15,0 | 15,4 |
| 140  | 12,8 | 12,6 | 12,4 | 12,4 | 12,3 | 12,1 | 12,0 | 12,0 | 12,0 | 12,1 | 12,1 | 12,3 | 12,5 | 12,8 | 13,1 | 13,3 | 13,7 | 14,2 | 14,4 |
| 160  | 12,7 | 12,5 | 12,3 | 12,2 | 12,1 | 12,1 | 11,9 | 11,8 | 11,8 | 11,8 | 11,8 | 11,9 | 12,0 | 12,2 | 12,4 | 12,6 | 12,9 | 13,4 | 13,8 |
| 180  | 12,6 | 12,5 | 12,3 | 12,2 | 12,1 | 11,9 | 11,8 | 11,7 | 11,5 | 11,5 | 11,5 | 11,6 | 11,7 | 11,8 | 11,9 | 12,1 | 12,3 | 12,5 | 12,8 |
| 200  | 12,3 | 12,3 | 12,2 | 12,2 | 12,0 | 11,9 | 11,7 | 11,7 | 11,5 | 11,4 | 11,3 | 11,2 | 11,3 | 11,5 | 11,5 | 11,6 | 11,7 | 12,0 | 12,1 |
| 220  | 12,0 | 12,0 | 12,0 | 12,1 | 12,0 | 11,8 | 11,6 | 11,6 | 11,5 | 11,4 | 11,3 | 11,2 | 11,1 | 11,1 | 11,1 | 11,2 | 11,3 | 11,6 | 11,7 |
| 240  | 11,7 | 11,8 | 11,8 | 11,9 | 11,9 | 11,8 | 11,6 | 11,5 | 11,4 | 11,3 | 11,2 | 11,1 | 11,1 | 11,0 | 10,9 | 10,9 | 11,0 | 11,2 | 11,3 |
| 260  | 11,0 | 11,2 | 11,5 | 11,6 | 11,6 | 11,6 | 11,5 | 11,3 | 11,3 | 11,3 | 11,2 | 11,1 | 11,0 | 10,9 | 10,8 | 10,8 | 10,8 | 10,9 | 10,9 |
| 280  | 10,4 | 10,6 | 10,8 | 11,1 | 11,2 | 11,2 | 11,2 | 11,3 | 11,3 | 11,2 | 11,2 | 11,1 | 11,0 | 10,9 | 10,8 | 10,7 | 10,6 | 10,7 | 10,6 |
| 300  | 9,4  | 9,9  | 10,1 | 10,5 | 10,8 | 10,9 | 11,0 | 11,1 | 11,0 | 11,0 | 11,0 | 11,0 | 11,1 | 10,9 | 10,8 | 10,7 | 10,6 | 10,6 | 10,5 |
| 320  | 8,5  | 8,9  | 9,4  | 9,7  | 10,1 | 10,4 | 10,5 | 10,7 | 10,8 | 10,8 | 10,8 | 10,8 | 10,8 | 10,9 | 10,7 | 10,7 | 10,6 | 10,6 | 10,5 |
| 340  | 7,6  | 8,0  | 8,5  | 9,1  | 9,3  | 9,6  | 9,9  | 10,2 | 10,3 | 10,5 | 10,6 | 10,6 | 10,7 | 10,7 | 10,7 | 10,6 | 10,5 | 10,5 | 10,4 |
| 360  | 6,6  | 7,1  | 7,5  | 8,0  | 8,4  | 8,9  | 9,2  | 9,5  | 9,8  | 10,1 | 10,3 | 10,4 | 10,5 | 10,5 | 10,5 | 10,5 | 10,5 | 10,5 | 10,4 |
| 380  | 5,0  | 5,6  | 6,2  | 6,8  | 7,3  | 7,8  | 8,3  | 8,9  | 9,3  | 9,7  | 10,0 | 10,0 | 10,1 | 10,2 | 10,3 | 10,3 | 10,3 | 10,4 | 10,3 |
| 400  | 4,7  | 5,2  | 5,6  | 6,2  | 6,6  | 7,0  | 7,5  | 7,9  | 8,4  | 8,8  | 9,1  | 9,4  | 9,7  | 9,9  | 10,0 | 10,0 | 10,2 | 10,3 | 10,2 |
| 420  | 3,8  | 4,3  | 4,8  | 5,3  | 5,8  | 6,2  | 6,6  | 7,1  | 7,4  | 7,9  | 8,4  | 8,7  | 9,1  | 9,4  | 9,6  | 9,8  | 9,9  | 10,1 | 10,2 |
| 440  | 3,2  | 3,5  | 3,9  | 4,4  | 4,9  | 5,4  | 5,7  | 6,2  | 6,7  | 7,1  | 7,6  | 7,9  | 8,4  | 8,7  | 9,0  | 9,2  | 9,4  | 9,7  | 9,8  |
| 460  | 2,8  | 3,2  | 3,3  | 3,8  | 4,1  | 4,5  | 4,9  | 5,4  | 5,7  | 6,3  | 6,7  | 7,2  | 7,7  | 8,0  | 8,4  | 8,6  | 8,8  | 9,1  | 9,3  |
| 480  | 2,6  | 2,7  | 2,9  | 3,2  | 3,6  | 3,9  | 4,3  | 4,7  | 5,0  | 5,4  | 5,9  | 6,3  | 6,8  | 7,3  | 7,6  | 7,9  | 8,4  | 8,7  | 8,9  |
| 500  | 2,9  | 2,7  | 2,7  | 2,9  | 3,1  | 3,4  | 3,6  | 4,0  | 4,4  | 4,8  | 5,2  | 5,7  | 5,9  | 6,4  | 6,9  | 7,2  | 7,6  | 8,0  | 8,3  |
| 520  | 3,2  | 3,1  | 2,8  | 2,9  | 3,0  | 3,1  | 3,2  | 3,5  | 3,8  | 4,2  | 4,7  | 4,9  | 5,4  | 5,7  | 6,1  | 6,6  | 6,9  | 7,3  | 7,6  |
| 540  | 3,8  | 3,5  | 3,2  | 3,1  | 3,0  | 3,0  | 3,0  | 3,3  | 3,5  | 3,7  | 4,1  | 4,3  | 4,7  | 5,1  | 5,4  | 5,8  | 6,2  | 6,7  | 7,0  |
| 560  | 4,5  | 4,1  | 3,8  | 3,6  | 3,3  | 3,2  | 3,2  | 3,2  | 3,3  | 3,5  | 3,7  | 4,0  | 4,3  | 4,5  | 4,9  | 5,1  | 5,5  | 6,0  | 6,3  |
| 580  | 5,5  | 5,0  | 4,6  | 4,2  | 4,0  | 3,6  | 3,5  | 3,3  | 3,2  | 3,4  | 3,5  | 3,7  | 4,0  | 4,2  | 4,4  | 4,8  | 5,0  | 5,3  | 5,7  |
| 600  | 6,7  | 6,0  | 5,4  | 5,1  | 4,6  | 4,3  | 3,9  | 3,7  | 3,5  | 3,5  | 3,6  | 3,7  | 3,8  | 4,0  | 4,2  | 4,3  | 4,7  | 4,9  | 5,2  |
| 620  | 8,0  | 7,3  | 6,6  | 6,0  | 5,6  | 5,1  | 4,6  | 4,2  | 4,0  | 3,9  | 3,8  | 3,9  | 3,9  | 4,0  | 4,0  | 4,1  | 4,3  | 4,7  | 4,8  |
| 640  | 9,4  | 8,7  | 7,8  | 7,3  | 6,6  | 6,1  | 5,5  | 5,2  | 4,7  | 4,4  | 4,2  | 4,0  | 4,0  | 4,1  | 4,1  | 4,2  | 4,2  | 4,4  | 4,6  |
| 660  | 11,0 | 10,1 | 9,3  | 8,6  | 7,7  | 7,2  | 6,5  | 6,2  | 5,9  | 5,3  | 4,9  | 4,6  | 4,5  | 4,4  | 4,3  | 4,3  | 4,3  | 4,5  | 4,5  |
| 680  | 12,5 | 11,6 | 10,8 | 10,0 | 9,3  | 8,5  | 7,5  | 7,3  | 6,7  | 6,3  | 5,8  | 5,5  | 5,2  | 4,9  | 4,9  | 4,7  | 4,6  | 4,7  | 4,5  |
| 700  | 13,8 | 13,0 | 12,1 | 11,5 | 10,7 | 9,9  | 9,0  | 8,5  | 7,8  | 7,4  | 6,9  | 6,3  | 6,0  | 5,8  | 5,4  | 5,2  | 5,1  | 5,0  | 4,9  |
| 720  | 15,1 | 14,3 | 13,5 | 12,8 | 12,1 | 11,3 | 10,6 | 9,8  | 9,1  | 8,7  | 8,0  | 7,6  | 7,0  | 6,6  | 6,2  | 5,9  | 5,7  | 5,6  | 5,5  |
| 740  | 16,8 | 15,7 | 14,9 | 14,2 | 13,4 | 12,7 | 12,0 | 11,2 | 10,5 | 9,7  | 9,3  | 8,9  | 8,2  | 7,7  | 7,2  | 6,8  | 6,5  | 6,4  | 6,1  |
| 760  | 17,4 | 16,7 | 15,9 | 15,5 | 14,7 | 13,9 | 13,3 | 12,6 | 11,8 | 11,2 | 10,5 | 10,0 | 9,5  | 9,0  | 8,2  | 7,9  | 7,5  | 7,2  | 6,9  |
| 780  | 18,1 | 17,6 | 17,0 | 16,4 | 15,7 | 15,1 | 14,6 | 13,8 | 13,2 | 12,6 | 11,9 | 11,2 | 10,8 | 10,2 | 9,7  | 9,1  | 8,4  | 8,2  | 7,7  |
| 800  | 18,7 | 18,2 | 17,8 | 17,3 | 16,8 | 16,2 | 15,6 | 15,0 | 14,3 | 13,7 | 13,1 | 12,6 | 12,0 | 11,5 | 11,0 | 10,4 | 9,8  | 9,4  | 8,7  |
| 820  | 18,9 | 18,7 | 18,3 | 18,0 | 17,6 | 17,0 | 16,6 | 16,0 | 15,3 | 14,9 | 14,3 | 13,7 | 13,1 | 12,6 | 12,1 | 11,7 | 11,2 | 10,6 | 10,1 |
| 840  | 19,0 | 18,9 | 18,7 | 18,4 | 18,2 | 17,7 | 17,2 | 16,8 | 16,3 | 15,8 | 15,3 | 14,9 | 14,4 | 13,8 | 13,2 | 12,8 | 12,3 | 11,9 | 11,3 |
| 860  | 19,0 | 18,8 | 18,7 | 18,6 | 18,4 | 18,3 | 17,9 | 17,4 | 17,1 | 16,7 | 16,3 | 15,9 | 15,4 | 15,0 | 14,4 | 13,8 | 13,5 | 13,1 | 12,6 |
| 880  | 18,6 | 18,7 | 18,5 | 18,6 | 18,5 | 18,3 | 18,2 | 18,0 | 17,7 | 17,4 | 17,1 | 16,6 | 16,3 | 15,9 | 15,4 | 15,0 | 14,4 | 14,2 | 13,7 |
| 900  | 18,2 | 18,2 | 18,2 | 18,3 | 18,3 | 18,3 | 18,1 | 18,1 | 18,0 | 17,8 | 17,6 | 17,3 | 17,0 | 16,7 | 16,4 | 15,9 | 15,5 | 15,2 | 14,8 |
| 920  | 17,5 | 17,7 | 17,9 | 18,0 | 18,0 | 18,1 | 18,1 | 18,0 | 18,0 | 18,0 | 17,8 | 17,7 | 17,6 | 17,3 | 17,1 | 16,8 | 16,5 | 16,2 | 15,7 |
| 940  | 16,8 | 17,1 | 17,1 | 17,4 | 17,6 | 17,6 | 17,7 | 17,8 | 17,8 | 17,9 | 18,0 | 17,8 | 17,8 | 17,7 | 17,5 | 17,3 | 17,1 | 16,9 | 16,6 |
| 960  | 16,0 | 16,3 | 16,5 | 16,8 | 16,9 | 17,1 | 17,2 | 17,4 | 17,5 | 17,6 | 17,8 | 17,9 | 18,0 | 17,9 | 17,8 | 17,6 | 17,5 | 17,4 | 17,2 |
| 980  | 15,3 | 15,5 | 15,7 | 16,1 | 16,3 | 16,5 | 16,7 | 16,8 | 17,0 | 17,2 | 17,3 | 17,6 | 17,7 | 17,9 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 |
| 1000 | 14,7 | 14,8 | 15,0 | 15,3 | 15,5 | 15,8 | 15,9 | 16,2 | 16,3 | 16,7 | 17,0 | 17,1 | 17,3 | 17,5 | 17,7 | 17,7 | 17,8 | 17,9 | 17,9 |
|      | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  |



TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 17,9 | 18,0 | 18,0 | 17,9 | 17,7 | 17,6 | 17,5 | 17,5 | 17,1 | 17,0 | 16,7 | 16,5 | 16,3 | 16,1 | 15,8 | 15,6 | 15,1 | 14,6 | 14,3 |
| 20   | 17,8 | 18,0 | 18,1 | 18,1 | 18,1 | 18,0 | 18,0 | 18,0 | 18,1 | 17,7 | 17,5 | 17,5 | 17,2 | 17,1 | 16,8 | 16,7 | 16,3 | 16,0 | 15,6 |
| 40   | 17,7 | 17,9 | 18,1 | 18,3 | 18,3 | 18,4 | 18,4 | 18,6 | 18,6 | 18,5 | 18,4 | 18,3 | 18,1 | 18,0 | 17,8 | 17,6 | 17,3 | 17,2 | 16,8 |
| 60   | 17,3 | 17,6 | 17,9 | 18,2 | 18,3 | 18,5 | 18,5 | 18,7 | 18,9 | 18,9 | 18,9 | 18,9 | 18,7 | 18,8 | 18,6 | 18,7 | 18,4 | 18,1 | 17,9 |
| 80   | 16,7 | 17,0 | 17,5 | 17,8 | 18,0 | 18,3 | 18,5 | 18,8 | 18,9 | 19,2 | 19,3 | 19,4 | 19,3 | 19,3 | 19,3 | 19,3 | 19,2 | 19,2 | 18,9 |
| 100  | 16,1 | 16,5 | 17,0 | 17,2 | 17,5 | 17,9 | 18,3 | 18,7 | 18,9 | 19,1 | 19,4 | 19,7 | 19,8 | 19,8 | 19,8 | 19,8 | 19,8 | 19,9 | 19,7 |
| 120  | 15,4 | 15,8 | 16,2 | 16,7 | 17,1 | 17,3 | 17,9 | 18,3 | 18,6 | 18,9 | 19,2 | 19,5 | 19,8 | 20,0 | 20,1 | 20,3 | 20,3 | 20,4 | 20,4 |
| 140  | 14,4 | 15,1 | 15,5 | 15,9 | 16,3 | 16,8 | 17,3 | 17,7 | 18,2 | 18,6 | 18,9 | 19,2 | 19,6 | 20,0 | 20,3 | 20,5 | 20,6 | 20,7 | 20,8 |
| 160  | 13,8 | 14,1 | 14,6 | 15,2 | 15,5 | 16,0 | 16,5 | 17,1 | 17,6 | 17,9 | 18,5 | 19,0 | 19,3 | 19,8 | 20,2 | 20,5 | 20,6 | 20,9 | 21,1 |
| 180  | 12,8 | 13,3 | 13,7 | 14,4 | 14,7 | 15,2 | 15,7 | 16,3 | 16,8 | 17,3 | 17,9 | 18,3 | 18,8 | 19,3 | 19,8 | 20,3 | 20,6 | 20,9 | 21,1 |
| 200  | 12,1 | 12,5 | 13,0 | 13,4 | 13,8 | 14,3 | 14,7 | 15,5 | 16,0 | 16,5 | 17,1 | 17,7 | 18,2 | 18,6 | 19,1 | 19,8 | 20,2 | 20,7 | 21,0 |
| 220  | 11,7 | 11,9 | 12,3 | 12,7 | 13,0 | 13,5 | 14,0 | 14,5 | 15,0 | 15,6 | 16,1 | 16,9 | 17,4 | 18,0 | 18,6 | 19,0 | 19,7 | 20,3 | 20,7 |
| 240  | 11,3 | 11,5 | 11,8 | 12,1 | 12,3 | 12,8 | 13,2 | 13,8 | 14,2 | 14,7 | 15,2 | 15,9 | 16,5 | 17,1 | 17,7 | 18,4 | 18,9 | 19,5 | 20,1 |
| 260  | 10,9 | 11,1 | 11,3 | 11,4 | 11,6 | 12,0 | 12,3 | 13,0 | 13,4 | 13,9 | 14,4 | 15,0 | 15,5 | 16,3 | 16,9 | 17,5 | 18,0 | 18,6 | 19,3 |
| 280  | 10,6 | 10,8 | 11,0 | 11,2 | 11,3 | 11,5 | 11,8 | 12,2 | 12,7 | 13,0 | 13,5 | 14,2 | 14,7 | 15,3 | 15,9 | 16,7 | 17,2 | 17,8 | 18,4 |
| 300  | 10,5 | 10,6 | 10,7 | 10,8 | 10,9 | 11,1 | 11,4 | 11,8 | 11,9 | 12,4 | 12,8 | 13,3 | 13,8 | 14,4 | 14,9 | 15,7 | 16,3 | 17,0 | 17,6 |
| 320  | 10,5 | 10,5 | 10,6 | 10,7 | 10,6 | 10,7 | 11,0 | 11,2 | 11,5 | 11,8 | 12,2 | 12,7 | 13,0 | 13,6 | 14,1 | 14,7 | 15,3 | 16,0 | 16,6 |
| 340  | 10,4 | 10,5 | 10,5 | 10,6 | 10,5 | 10,6 | 10,7 | 10,8 | 11,2 | 11,4 | 11,6 | 12,1 | 12,4 | 12,9 | 13,4 | 13,9 | 14,4 | 15,1 | 15,7 |
| 360  | 10,4 | 10,4 | 10,4 | 10,4 | 10,3 | 10,5 | 10,6 | 10,8 | 10,8 | 11,0 | 11,2 | 11,6 | 11,9 | 12,3 | 12,6 | 13,2 | 13,6 | 14,2 | 14,8 |
| 380  | 10,3 | 10,4 | 10,4 | 10,4 | 10,3 | 10,3 | 10,4 | 10,6 | 10,6 | 10,7 | 10,9 | 11,2 | 11,4 | 11,9 | 12,2 | 12,6 | 12,9 | 13,5 | 13,9 |
| 400  | 10,2 | 10,2 | 10,3 | 10,4 | 10,3 | 10,3 | 10,3 | 10,5 | 10,5 | 10,6 | 10,6 | 10,9 | 11,1 | 11,4 | 11,8 | 12,2 | 12,5 | 12,9 | 13,3 |
| 420  | 10,2 | 10,1 | 10,2 | 10,2 | 10,2 | 10,3 | 10,3 | 10,4 | 10,4 | 10,5 | 10,6 | 10,7 | 10,9 | 11,2 | 11,3 | 11,7 | 11,9 | 12,4 | 12,8 |
| 440  | 9,8  | 10,0 | 10,1 | 10,2 | 10,1 | 10,1 | 10,2 | 10,4 | 10,4 | 10,4 | 10,5 | 10,7 | 10,8 | 10,9 | 11,1 | 11,3 | 11,6 | 11,9 | 12,2 |
| 460  | 9,3  | 9,6  | 9,9  | 10,1 | 10,0 | 10,0 | 10,2 | 10,3 | 10,4 | 10,4 | 10,4 | 10,6 | 10,6 | 10,7 | 10,9 | 11,2 | 11,3 | 11,7 | 11,9 |
| 480  | 8,9  | 9,1  | 9,4  | 9,6  | 9,7  | 9,8  | 10,0 | 10,1 | 10,2 | 10,3 | 10,4 | 10,6 | 10,6 | 10,7 | 10,8 | 11,0 | 11,2 | 11,4 | 11,7 |
| 500  | 8,3  | 8,6  | 8,9  | 9,2  | 9,4  | 9,5  | 9,7  | 9,9  | 10,0 | 10,1 | 10,2 | 10,4 | 10,5 | 10,7 | 10,8 | 10,9 | 11,0 | 11,2 | 11,3 |
| 520  | 7,6  | 7,9  | 8,3  | 8,6  | 8,9  | 9,1  | 9,4  | 9,7  | 9,8  | 9,8  | 10,0 | 10,2 | 10,3 | 10,5 | 10,6 | 10,9 | 10,8 | 11,1 | 11,3 |
| 540  | 7,0  | 7,4  | 7,7  | 8,0  | 8,3  | 8,6  | 8,9  | 9,2  | 9,4  | 9,6  | 9,8  | 10,0 | 10,2 | 10,3 | 10,4 | 10,6 | 10,7 | 10,9 | 11,1 |
| 560  | 6,3  | 6,7  | 7,2  | 7,5  | 7,7  | 8,0  | 8,3  | 8,7  | 8,9  | 9,1  | 9,3  | 9,7  | 9,8  | 10,1 | 10,3 | 10,5 | 10,6 | 10,7 | 10,8 |
| 580  | 5,7  | 6,1  | 6,6  | 6,9  | 7,1  | 7,4  | 7,7  | 8,1  | 8,5  | 8,7  | 8,7  | 9,2  | 9,4  | 9,7  | 9,9  | 10,2 | 10,4 | 10,6 | 10,7 |
| 600  | 5,2  | 5,6  | 6,0  | 6,3  | 6,5  | 6,8  | 7,2  | 7,6  | 7,9  | 8,2  | 8,5  | 8,8  | 9,0  | 9,3  | 9,5  | 9,8  | 10,0 | 10,3 | 10,5 |
| 620  | 4,8  | 5,1  | 5,5  | 5,8  | 6,1  | 6,4  | 6,7  | 7,0  | 7,3  | 7,6  | 7,9  | 8,2  | 8,5  | 8,8  | 9,0  | 9,4  | 9,6  | 10,0 | 10,1 |
| 640  | 4,6  | 4,8  | 5,1  | 5,4  | 5,6  | 5,9  | 6,3  | 6,6  | 6,8  | 7,1  | 7,4  | 7,7  | 7,9  | 8,2  | 8,6  | 8,9  | 9,1  | 9,4  | 9,7  |
| 660  | 4,5  | 4,7  | 4,9  | 5,1  | 5,3  | 5,5  | 5,8  | 6,2  | 6,4  | 6,6  | 6,9  | 7,3  | 7,6  | 7,9  | 8,1  | 8,3  | 8,6  | 8,9  | 9,2  |
| 680  | 4,5  | 4,6  | 4,8  | 5,0  | 5,1  | 5,3  | 5,5  | 5,8  | 6,1  | 6,2  | 6,5  | 6,8  | 7,0  | 7,4  | 7,6  | 7,9  | 8,1  | 8,4  | 8,7  |
| 700  | 4,9  | 4,9  | 4,9  | 5,1  | 5,2  | 5,3  | 5,4  | 5,6  | 5,8  | 6,0  | 6,2  | 6,4  | 6,6  | 6,9  | 7,1  | 7,4  | 7,6  | 7,9  | 8,2  |
| 720  | 5,5  | 5,4  | 5,3  | 5,3  | 5,3  | 5,3  | 5,4  | 5,5  | 5,6  | 5,7  | 5,9  | 6,2  | 6,3  | 6,5  | 6,8  | 7,1  | 7,2  | 7,5  | 7,7  |
| 740  | 6,1  | 6,0  | 5,9  | 5,8  | 5,7  | 5,6  | 5,5  | 5,7  | 5,7  | 5,7  | 5,8  | 6,0  | 6,1  | 6,2  | 6,4  | 6,7  | 6,9  | 7,1  | 7,2  |
| 760  | 6,9  | 6,7  | 6,5  | 6,3  | 6,1  | 5,9  | 5,9  | 6,0  | 6,0  | 6,0  | 6,0  | 6,0  | 6,1  | 6,2  | 6,3  | 6,4  | 6,5  | 6,7  | 6,8  |
| 780  | 7,7  | 7,6  | 7,4  | 7,2  | 6,9  | 6,6  | 6,5  | 6,5  | 6,3  | 6,2  | 6,2  | 6,3  | 6,3  | 6,3  | 6,3  | 6,4  | 6,4  | 6,5  | 6,7  |
| 800  | 8,7  | 8,5  | 8,3  | 8,0  | 7,7  | 7,6  | 7,3  | 7,1  | 7,0  | 6,7  | 6,6  | 6,7  | 6,5  | 6,5  | 6,4  | 6,5  | 6,5  | 6,5  | 6,6  |
| 820  | 10,1 | 9,7  | 9,2  | 9,1  | 8,6  | 8,3  | 8,1  | 7,9  | 7,6  | 7,5  | 7,3  | 7,2  | 7,0  | 7,0  | 6,8  | 6,8  | 6,7  | 6,6  | 6,6  |
| 840  | 11,3 | 10,9 | 10,5 | 10,2 | 9,6  | 9,4  | 9,1  | 8,9  | 8,6  | 8,3  | 8,1  | 7,8  | 7,7  | 7,6  | 7,4  | 7,3  | 7,1  | 7,0  | 6,8  |
| 860  | 12,6 | 12,1 | 11,7 | 11,2 | 10,7 | 10,4 | 10,1 | 10,0 | 9,7  | 9,3  | 9,0  | 8,7  | 8,4  | 8,2  | 8,1  | 7,9  | 7,7  | 7,6  | 7,3  |
| 880  | 13,7 | 13,4 | 12,9 | 12,5 | 12,0 | 11,5 | 11,3 | 11,1 | 10,5 | 10,4 | 10,0 | 9,7  | 9,5  | 9,2  | 8,9  | 8,7  | 8,4  | 8,2  | 7,9  |
| 900  | 14,8 | 14,4 | 14,1 | 13,7 | 13,2 | 12,8 | 12,4 | 12,2 | 11,8 | 11,5 | 11,0 | 10,8 | 10,5 | 10,3 | 9,9  | 9,7  | 9,4  | 9,0  | 8,8  |
| 920  | 15,7 | 15,5 | 15,2 | 14,8 | 14,3 | 14,0 | 13,6 | 13,3 | 13,0 | 12,6 | 12,3 | 12,1 | 11,5 | 11,3 | 11,0 | 10,6 | 10,2 | 10,1 | 9,7  |
| 940  | 16,6 | 16,3 | 16,1 | 16,0 | 15,5 | 15,0 | 14,7 | 14,5 | 14,1 | 13,8 | 13,5 | 13,2 | 12,8 | 12,5 | 11,9 | 11,8 | 11,3 | 11,0 | 10,7 |
| 960  | 17,2 | 17,0 | 16,9 | 16,8 | 16,4 | 16,2 | 15,8 | 15,6 | 15,3 | 14,9 | 14,6 | 14,4 | 14,0 | 13,7 | 13,3 | 13,0 | 12,5 | 12,1 | 11,8 |
| 980  | 17,8 | 17,6 | 17,5 | 17,3 | 17,2 | 17,0 | 16,8 | 16,6 | 16,3 | 16,0 | 15,7 | 15,6 | 15,2 | 14,9 | 14,6 | 14,2 | 13,8 | 13,6 | 12,9 |
| 1000 | 17,9 | 18,0 | 18,0 | 17,9 | 17,7 | 17,6 | 17,5 | 17,5 | 17,1 | 17,0 | 16,7 | 16,5 | 16,3 | 16,1 | 15,8 | 15,6 | 15,1 | 14,6 | 14,3 |
|      | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  |



TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 14,3 | 13,9 | 13,4 | 13,1 | 12,7 | 12,1 | 11,8 | 11,3 | 10,8 | 10,2 | 9,9  | 9,4  | 8,9  | 8,4  | 8,0  | 7,7  | 7,3  | 6,9  | 6,7  |
| 20   | 15,6 | 15,3 | 14,9 | 14,4 | 13,9 | 13,5 | 13,1 | 12,5 | 12,1 | 11,5 | 11,0 | 10,4 | 10,0 | 9,4  | 9,0  | 8,4  | 8,0  | 7,5  | 7,1  |
| 40   | 16,8 | 16,5 | 16,3 | 15,7 | 15,4 | 15,0 | 14,3 | 13,8 | 13,4 | 12,8 | 12,3 | 11,7 | 11,1 | 10,5 | 10,1 | 9,4  | 8,9  | 8,3  | 7,8  |
| 60   | 17,9 | 17,7 | 17,3 | 17,0 | 16,6 | 16,1 | 15,8 | 15,3 | 14,7 | 14,3 | 13,7 | 13,0 | 12,4 | 11,8 | 11,3 | 10,6 | 10,1 | 9,3  | 8,7  |
| 80   | 18,9 | 18,8 | 18,5 | 18,1 | 17,9 | 17,4 | 17,1 | 16,6 | 16,2 | 15,7 | 15,1 | 14,5 | 13,9 | 13,2 | 12,7 | 12,0 | 11,3 | 10,5 | 9,9  |
| 100  | 19,7 | 19,7 | 19,5 | 19,2 | 19,0 | 18,8 | 18,4 | 17,9 | 17,6 | 17,0 | 16,5 | 16,0 | 15,2 | 14,7 | 14,1 | 13,4 | 12,8 | 12,0 | 11,3 |
| 120  | 20,4 | 20,4 | 20,3 | 20,2 | 20,0 | 19,7 | 19,5 | 19,1 | 18,8 | 18,4 | 18,0 | 17,3 | 16,8 | 16,2 | 15,4 | 14,9 | 14,2 | 13,4 | 12,7 |
| 140  | 20,8 | 21,0 | 21,1 | 21,0 | 20,8 | 20,7 | 20,4 | 20,2 | 19,9 | 19,6 | 19,3 | 18,8 | 18,3 | 17,7 | 17,2 | 16,4 | 15,6 | 14,9 | 14,2 |
| 160  | 21,1 | 21,2 | 21,5 | 21,5 | 21,6 | 21,5 | 21,3 | 21,2 | 21,0 | 20,6 | 20,4 | 20,1 | 19,6 | 19,1 | 18,6 | 17,9 | 17,3 | 16,6 | 15,7 |
| 180  | 21,1 | 21,4 | 21,6 | 21,8 | 22,0 | 22,0 | 22,1 | 21,9 | 21,8 | 21,6 | 21,4 | 21,1 | 20,7 | 20,3 | 19,9 | 19,4 | 18,8 | 18,0 | 17,3 |
| 200  | 21,0 | 21,4 | 21,7 | 21,9 | 22,1 | 22,3 | 22,5 | 22,5 | 22,5 | 22,4 | 22,3 | 22,1 | 21,8 | 21,5 | 21,2 | 20,8 | 20,2 | 19,3 | 18,9 |
| 220  | 20,7 | 21,1 | 21,5 | 21,8 | 22,2 | 22,5 | 22,8 | 23,1 | 23,1 | 22,9 | 22,8 | 22,9 | 22,6 | 22,5 | 22,3 | 21,9 | 21,5 | 21,0 | 20,3 |
| 240  | 20,1 | 20,7 | 21,1 | 21,5 | 21,9 | 22,3 | 22,7 | 23,0 | 23,3 | 23,4 | 23,5 | 23,4 | 23,3 | 23,2 | 23,0 | 22,9 | 22,5 | 22,0 | 21,6 |
| 260  | 19,3 | 20,0 | 20,6 | 21,0 | 21,6 | 22,0 | 22,4 | 22,8 | 23,2 | 23,5 | 23,8 | 23,8 | 23,8 | 23,9 | 23,8 | 23,7 | 23,5 | 23,1 | 22,7 |
| 280  | 18,4 | 19,1 | 19,9 | 20,4 | 20,9 | 21,5 | 22,0 | 22,4 | 23,0 | 23,3 | 23,7 | 24,0 | 24,1 | 24,1 | 24,3 | 24,2 | 24,2 | 24,0 | 23,7 |
| 300  | 17,6 | 18,2 | 19,0 | 19,6 | 20,3 | 20,7 | 21,3 | 21,8 | 22,3 | 23,0 | 23,4 | 23,8 | 24,1 | 24,3 | 24,5 | 24,6 | 24,6 | 24,5 | 24,4 |
| 320  | 16,6 | 17,4 | 18,9 | 18,7 | 19,4 | 20,0 | 20,6 | 21,1 | 21,8 | 22,3 | 22,9 | 23,3 | 23,7 | 24,2 | 24,5 | 24,7 | 24,9 | 24,8 | 24,8 |
| 340  | 15,7 | 16,4 | 17,0 | 17,6 | 18,5 | 19,2 | 19,9 | 20,4 | 21,1 | 21,6 | 22,2 | 22,8 | 23,3 | 23,7 | 24,2 | 24,5 | 24,7 | 25,0 | 25,2 |
| 360  | 14,8 | 15,5 | 16,2 | 16,7 | 17,4 | 18,2 | 18,9 | 19,5 | 20,1 | 20,8 | 21,5 | 22,0 | 22,6 | 23,2 | 23,7 | 24,2 | 24,5 | 24,7 | 25,0 |
| 380  | 13,9 | 14,5 | 15,2 | 15,9 | 16,6 | 17,1 | 17,9 | 18,6 | 19,3 | 19,8 | 20,5 | 21,1 | 21,8 | 22,5 | 23,1 | 23,6 | 24,1 | 24,4 | 24,7 |
| 400  | 13,3 | 13,8 | 14,4 | 14,9 | 15,6 | 16,2 | 16,8 | 17,6 | 18,4 | 19,1 | 19,7 | 20,3 | 20,9 | 21,5 | 22,3 | 22,8 | 23,4 | 23,9 | 24,3 |
| 420  | 12,8 | 13,3 | 13,7 | 14,2 | 14,8 | 15,3 | 16,0 | 16,5 | 17,4 | 18,0 | 18,7 | 19,4 | 20,0 | 20,6 | 21,3 | 22,0 | 22,6 | 23,1 | 23,6 |
| 440  | 12,2 | 12,7 | 13,1 | 13,6 | 14,1 | 14,6 | 15,2 | 15,7 | 16,4 | 17,1 | 17,8 | 18,4 | 18,9 | 19,6 | 20,3 | 21,0 | 21,8 | 22,3 | 22,9 |
| 460  | 11,9 | 12,2 | 12,7 | 13,0 | 13,5 | 13,9 | 14,4 | 15,0 | 15,6 | 16,1 | 16,9 | 17,5 | 18,2 | 18,7 | 19,4 | 20,1 | 20,7 | 21,3 | 21,9 |
| 480  | 11,7 | 12,0 | 12,2 | 12,5 | 13,0 | 13,4 | 13,9 | 14,3 | 14,8 | 15,3 | 15,9 | 16,6 | 17,3 | 17,9 | 18,5 | 19,1 | 19,7 | 20,3 | 21,0 |
| 500  | 11,3 | 11,7 | 12,0 | 12,2 | 12,6 | 12,9 | 13,3 | 13,8 | 14,3 | 14,7 | 15,2 | 15,7 | 16,4 | 16,9 | 17,6 | 18,2 | 18,8 | 19,3 | 19,9 |
| 520  | 11,3 | 11,5 | 11,9 | 12,0 | 12,3 | 12,6 | 13,0 | 13,2 | 13,8 | 14,2 | 14,7 | 15,1 | 15,5 | 16,2 | 16,8 | 17,3 | 17,9 | 18,4 | 19,0 |
| 540  | 11,1 | 11,4 | 11,6 | 11,9 | 12,2 | 12,4 | 12,7 | 12,9 | 13,3 | 13,7 | 14,2 | 14,6 | 15,0 | 15,4 | 16,1 | 16,6 | 17,2 | 17,5 | 18,1 |
| 560  | 10,8 | 11,2 | 11,4 | 11,5 | 11,9 | 12,1 | 12,4 | 12,7 | 13,1 | 13,4 | 13,8 | 14,1 | 14,5 | 14,9 | 15,4 | 16,0 | 16,5 | 16,9 | 17,3 |
| 580  | 10,7 | 10,9 | 11,2 | 11,4 | 11,6 | 11,9 | 12,2 | 12,4 | 12,8 | 13,1 | 13,5 | 13,8 | 14,2 | 14,5 | 15,0 | 15,3 | 15,9 | 16,3 | 16,7 |
| 600  | 10,5 | 10,7 | 10,8 | 11,1 | 11,5 | 11,7 | 12,0 | 12,2 | 12,5 | 12,8 | 13,1 | 13,4 | 13,8 | 14,2 | 14,6 | 14,9 | 15,3 | 15,8 | 16,3 |
| 620  | 10,1 | 10,4 | 10,7 | 10,7 | 11,1 | 11,4 | 11,6 | 12,0 | 12,3 | 12,5 | 12,9 | 13,1 | 13,4 | 13,8 | 14,2 | 14,6 | 14,9 | 15,1 | 15,7 |
| 640  | 9,7  | 10,1 | 10,4 | 10,6 | 10,7 | 11,0 | 11,3 | 11,6 | 12,0 | 12,3 | 12,6 | 12,9 | 13,2 | 13,5 | 14,0 | 14,2 | 14,6 | 14,8 | 15,1 |
| 660  | 9,2  | 9,5  | 9,9  | 10,2 | 10,5 | 10,6 | 11,0 | 11,3 | 11,6 | 11,9 | 12,3 | 12,6 | 12,9 | 13,2 | 13,5 | 13,9 | 14,3 | 14,6 | 14,9 |
| 680  | 8,7  | 9,0  | 9,3  | 9,6  | 10,0 | 10,3 | 10,5 | 10,8 | 11,3 | 11,5 | 11,9 | 12,2 | 12,4 | 12,8 | 13,2 | 13,5 | 13,9 | 14,2 | 14,5 |
| 700  | 8,2  | 8,5  | 8,9  | 9,1  | 9,5  | 9,8  | 10,1 | 10,3 | 10,7 | 11,1 | 11,4 | 11,8 | 12,1 | 12,4 | 12,9 | 13,3 | 13,5 | 13,8 | 14,2 |
| 720  | 7,7  | 8,0  | 8,3  | 8,5  | 9,0  | 9,2  | 9,6  | 9,9  | 10,2 | 10,5 | 10,9 | 11,3 | 11,7 | 12,0 | 12,4 | 12,8 | 13,2 | 13,5 | 13,8 |
| 740  | 7,2  | 7,5  | 7,8  | 8,0  | 8,3  | 8,6  | 9,0  | 9,3  | 9,7  | 9,9  | 10,4 | 10,8 | 11,1 | 11,5 | 11,9 | 12,2 | 12,6 | 12,9 | 13,3 |
| 760  | 6,8  | 7,1  | 7,3  | 7,5  | 7,9  | 8,1  | 8,4  | 8,6  | 9,1  | 9,4  | 9,7  | 10,1 | 10,5 | 10,9 | 11,4 | 11,8 | 12,2 | 12,4 | 12,8 |
| 780  | 6,7  | 6,8  | 7,0  | 7,1  | 7,3  | 7,6  | 7,9  | 8,1  | 8,5  | 8,8  | 9,2  | 9,4  | 9,8  | 10,2 | 10,6 | 11,2 | 11,6 | 11,9 | 12,4 |
| 800  | 6,6  | 6,7  | 6,8  | 6,8  | 7,0  | 7,1  | 7,3  | 7,5  | 7,8  | 8,2  | 8,5  | 8,8  | 9,1  | 9,5  | 10,0 | 10,3 | 10,9 | 11,3 | 11,6 |
| 820  | 6,6  | 6,7  | 6,8  | 6,6  | 6,8  | 6,9  | 7,0  | 7,1  | 7,4  | 7,6  | 7,9  | 8,1  | 8,4  | 8,7  | 9,3  | 9,7  | 10,0 | 10,5 | 10,9 |
| 840  | 6,8  | 6,8  | 6,8  | 6,8  | 6,8  | 6,8  | 6,9  | 6,9  | 7,1  | 7,2  | 7,4  | 7,6  | 7,9  | 8,1  | 8,4  | 8,8  | 9,3  | 9,6  | 10,1 |
| 860  | 7,3  | 7,2  | 7,1  | 7,1  | 7,0  | 6,9  | 6,9  | 6,8  | 6,8  | 6,9  | 7,1  | 7,2  | 7,3  | 7,6  | 7,9  | 8,1  | 8,5  | 8,8  | 9,2  |
| 880  | 7,9  | 7,7  | 7,5  | 7,4  | 7,3  | 7,1  | 7,0  | 6,8  | 6,8  | 6,7  | 6,8  | 6,8  | 7,0  | 7,2  | 7,4  | 7,6  | 7,8  | 8,1  | 8,5  |
| 900  | 8,8  | 8,5  | 8,2  | 7,9  | 7,7  | 7,5  | 7,3  | 7,2  | 7,1  | 6,9  | 6,9  | 6,8  | 6,8  | 6,8  | 7,0  | 7,1  | 7,3  | 7,4  | 7,8  |
| 920  | 9,7  | 9,4  | 9,2  | 8,7  | 8,4  | 8,1  | 7,9  | 7,6  | 7,4  | 7,1  | 7,0  | 6,9  | 6,8  | 6,7  | 6,8  | 6,8  | 6,9  | 7,0  | 7,0  |
| 940  | 10,7 | 10,4 | 10,0 | 9,7  | 9,4  | 8,9  | 8,6  | 8,3  | 8,1  | 7,7  | 7,4  | 7,1  | 6,9  | 6,7  | 6,7  | 6,7  | 6,8  | 6,7  | 6,8  |
| 960  | 11,8 | 11,5 | 11,2 | 10,7 | 10,4 | 9,8  | 9,5  | 9,1  | 8,8  | 8,5  | 8,1  | 7,7  | 7,4  | 7,1  | 7,0  | 6,8  | 6,7  | 6,5  | 6,5  |
| 980  | 12,9 | 12,7 | 12,3 | 11,8 | 11,5 | 11,1 | 10,6 | 10,0 | 9,7  | 9,2  | 8,9  | 8,5  | 8,1  | 7,7  | 7,4  | 7,1  | 6,9  | 6,6  | 6,5  |
| 1000 | 14,3 | 13,9 | 13,4 | 13,1 | 12,7 | 12,1 | 11,8 | 11,3 | 10,8 | 10,2 | 9,9  | 9,4  | 8,9  | 8,4  | 8,0  | 7,7  | 7,3  | 6,9  | 6,7  |
|      | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  |



TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 680  | 690  | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 6,7  | 6,5  | 6,5  | 6,3  | 6,2  | 6,2  | 6,4  | 6,5  | 6,8  | 7,2  | 7,5  | 8,0  | 8,4  | 8,8  | 9,5  | 10,1 | 10,5 | 11,0 | 11,6 |
| 20   | 7,1  | 6,9  | 6,7  | 6,4  | 6,3  | 6,0  | 6,1  | 6,1  | 6,2  | 6,5  | 6,7  | 7,0  | 7,4  | 7,9  | 8,4  | 9,0  | 9,5  | 10,0 | 10,6 |
| 40   | 7,8  | 7,4  | 7,0  | 6,6  | 6,4  | 6,2  | 5,9  | 5,8  | 5,9  | 5,9  | 6,2  | 6,4  | 6,6  | 6,9  | 7,4  | 7,8  | 8,2  | 8,8  | 9,5  |
| 60   | 8,7  | 8,2  | 7,7  | 7,2  | 6,8  | 6,4  | 6,2  | 5,8  | 5,7  | 5,7  | 5,7  | 5,9  | 6,1  | 6,2  | 6,5  | 6,9  | 7,2  | 7,7  | 8,3  |
| 80   | 9,9  | 9,2  | 8,7  | 8,1  | 7,6  | 7,1  | 6,6  | 6,2  | 5,8  | 5,7  | 5,6  | 5,4  | 5,6  | 5,7  | 5,9  | 6,1  | 6,3  | 6,7  | 7,3  |
| 100  | 11,3 | 10,6 | 9,9  | 9,1  | 8,5  | 7,9  | 7,3  | 6,8  | 6,3  | 5,9  | 5,6  | 5,5  | 5,3  | 5,3  | 5,4  | 5,4  | 5,6  | 5,9  | 6,3  |
| 120  | 12,7 | 12,0 | 11,3 | 10,4 | 9,8  | 8,9  | 8,2  | 7,6  | 7,4  | 6,5  | 6,0  | 5,7  | 5,5  | 5,1  | 5,2  | 5,1  | 5,1  | 5,2  | 5,5  |
| 140  | 14,2 | 13,4 | 12,7 | 11,9 | 11,1 | 10,2 | 9,6  | 8,8  | 8,1  | 7,4  | 6,8  | 6,2  | 5,8  | 5,4  | 5,2  | 5,0  | 4,9  | 4,8  | 5,0  |
| 160  | 15,7 | 15,0 | 14,2 | 13,3 | 12,6 | 11,7 | 10,9 | 10,0 | 9,3  | 8,5  | 7,8  | 7,2  | 6,5  | 5,9  | 5,5  | 5,1  | 4,9  | 4,7  | 4,7  |
| 180  | 17,3 | 16,7 | 15,8 | 15,0 | 14,1 | 13,2 | 12,4 | 11,5 | 10,6 | 9,7  | 9,0  | 8,2  | 7,5  | 6,9  | 6,3  | 5,8  | 5,2  | 4,8  | 4,7  |
| 200  | 18,9 | 18,1 | 17,5 | 16,6 | 15,7 | 14,9 | 14,0 | 13,1 | 12,2 | 11,2 | 10,4 | 9,5  | 8,8  | 7,9  | 7,1  | 6,5  | 5,9  | 5,3  | 5,0  |
| 220  | 20,3 | 19,7 | 19,0 | 18,2 | 17,5 | 16,6 | 15,5 | 14,7 | 13,8 | 12,9 | 12,0 | 11,1 | 10,2 | 9,3  | 8,4  | 7,5  | 6,7  | 6,1  | 5,5  |
| 240  | 21,6 | 21,1 | 20,5 | 19,8 | 19,1 | 18,2 | 17,3 | 16,4 | 15,3 | 14,5 | 13,6 | 12,6 | 11,7 | 10,7 | 9,8  | 8,8  | 7,9  | 7,0  | 6,5  |
| 260  | 22,7 | 22,3 | 21,8 | 21,2 | 20,6 | 19,8 | 19,1 | 18,1 | 17,2 | 16,3 | 15,3 | 14,3 | 13,3 | 12,2 | 11,4 | 10,4 | 9,4  | 8,3  | 7,7  |
| 280  | 23,7 | 23,5 | 23,1 | 22,4 | 21,8 | 21,2 | 20,5 | 19,8 | 18,9 | 17,9 | 17,0 | 16,1 | 15,0 | 14,0 | 13,0 | 11,9 | 10,9 | 9,9  | 8,9  |
| 300  | 24,4 | 24,2 | 23,9 | 23,6 | 23,1 | 22,5 | 21,9 | 21,2 | 20,4 | 19,6 | 18,7 | 17,7 | 16,8 | 15,8 | 14,7 | 13,7 | 12,6 | 11,5 | 10,5 |
| 320  | 24,8 | 24,8 | 24,7 | 24,4 | 24,1 | 23,7 | 23,1 | 22,5 | 21,9 | 21,2 | 20,4 | 19,4 | 18,5 | 17,4 | 16,5 | 15,5 | 14,2 | 13,2 | 12,3 |
| 340  | 25,2 | 25,1 | 25,0 | 25,0 | 24,9 | 24,6 | 24,1 | 23,7 | 23,0 | 22,4 | 21,8 | 21,1 | 20,2 | 19,2 | 18,3 | 17,1 | 16,1 | 15,0 | 13,9 |
| 360  | 25,0 | 25,1 | 25,3 | 25,4 | 25,3 | 25,1 | 24,9 | 24,5 | 24,0 | 23,6 | 23,0 | 22,4 | 21,6 | 20,8 | 19,9 | 18,9 | 17,9 | 16,8 | 15,9 |
| 380  | 24,7 | 25,1 | 25,2 | 25,4 | 25,5 | 25,4 | 25,3 | 25,2 | 24,9 | 24,5 | 24,0 | 23,5 | 22,8 | 22,1 | 21,4 | 20,5 | 19,5 | 18,5 | 17,6 |
| 400  | 24,3 | 24,7 | 25,1 | 25,2 | 25,4 | 25,6 | 25,6 | 25,5 | 25,4 | 25,1 | 24,8 | 24,5 | 23,9 | 23,4 | 22,7 | 21,9 | 21,0 | 20,1 | 19,2 |
| 420  | 23,6 | 24,1 | 24,5 | 25,0 | 25,2 | 25,4 | 25,6 | 25,7 | 25,6 | 25,5 | 25,3 | 25,0 | 24,5 | 24,2 | 23,7 | 23,2 | 22,3 | 21,5 | 20,7 |
| 440  | 22,9 | 23,4 | 23,9 | 24,3 | 24,8 | 25,0 | 25,2 | 25,6 | 25,6 | 25,7 | 25,7 | 25,5 | 25,3 | 24,9 | 24,6 | 24,1 | 23,4 | 22,7 | 22,0 |
| 460  | 21,9 | 22,6 | 23,3 | 23,6 | 24,1 | 24,6 | 24,8 | 25,1 | 25,3 | 25,5 | 25,6 | 25,8 | 25,7 | 25,4 | 25,2 | 24,8 | 24,3 | 23,7 | 23,1 |
| 480  | 21,0 | 21,6 | 22,2 | 22,8 | 23,3 | 23,8 | 24,3 | 24,6 | 24,9 | 25,2 | 25,4 | 25,6 | 25,6 | 25,5 | 25,4 | 25,2 | 24,9 | 24,5 | 24,1 |
| 500  | 19,9 | 20,7 | 21,4 | 21,9 | 22,5 | 22,9 | 23,4 | 23,9 | 24,2 | 24,7 | 25,0 | 25,3 | 25,4 | 25,5 | 25,5 | 25,4 | 25,2 | 24,9 | 24,7 |
| 520  | 19,0 | 19,7 | 20,4 | 21,0 | 21,6 | 22,1 | 22,6 | 23,0 | 23,6 | 23,9 | 24,3 | 24,7 | 24,9 | 25,2 | 25,4 | 25,4 | 25,3 | 25,2 | 25,1 |
| 540  | 18,1 | 18,7 | 19,3 | 19,9 | 20,5 | 21,2 | 21,7 | 22,2 | 22,6 | 23,2 | 23,6 | 24,0 | 24,4 | 24,6 | 24,9 | 25,1 | 25,0 | 25,1 | 25,1 |
| 560  | 17,3 | 17,9 | 18,4 | 18,9 | 19,6 | 20,1 | 20,7 | 21,3 | 21,7 | 22,2 | 22,8 | 23,2 | 23,7 | 24,0 | 24,3 | 24,6 | 24,7 | 24,8 | 24,9 |
| 580  | 16,7 | 17,1 | 17,6 | 18,1 | 18,7 | 19,3 | 19,8 | 20,3 | 20,8 | 21,3 | 21,8 | 22,3 | 22,7 | 23,2 | 23,7 | 23,9 | 24,1 | 24,4 | 24,6 |
| 600  | 16,3 | 16,6 | 17,0 | 17,4 | 17,9 | 18,3 | 18,9 | 19,4 | 19,9 | 20,4 | 20,8 | 21,4 | 21,9 | 22,2 | 22,7 | 23,1 | 23,4 | 23,7 | 24,1 |
| 620  | 15,7 | 16,2 | 16,6 | 16,9 | 17,3 | 17,6 | 18,0 | 18,5 | 19,0 | 19,5 | 20,1 | 20,5 | 20,9 | 21,4 | 21,8 | 22,2 | 22,6 | 22,9 | 23,3 |
| 640  | 15,1 | 15,6 | 16,1 | 16,5 | 16,8 | 17,1 | 17,5 | 17,9 | 18,3 | 18,7 | 19,2 | 19,7 | 20,1 | 20,5 | 21,0 | 21,3 | 21,7 | 22,1 | 22,5 |
| 660  | 14,9 | 15,2 | 15,6 | 15,9 | 16,4 | 16,6 | 17,0 | 17,3 | 17,6 | 18,1 | 18,5 | 18,9 | 19,4 | 19,6 | 20,1 | 20,5 | 20,7 | 21,2 | 21,7 |
| 680  | 14,5 | 14,9 | 15,2 | 15,6 | 16,0 | 16,2 | 16,5 | 16,8 | 17,1 | 17,4 | 17,8 | 18,2 | 18,6 | 18,9 | 19,4 | 19,7 | 20,1 | 20,4 | 20,7 |
| 700  | 14,2 | 14,5 | 14,9 | 15,1 | 15,6 | 15,9 | 16,2 | 16,4 | 16,7 | 16,9 | 17,3 | 17,7 | 18,0 | 18,3 | 18,7 | 18,9 | 19,2 | 19,6 | 20,0 |
| 720  | 13,8 | 14,2 | 14,5 | 14,8 | 15,1 | 15,5 | 15,8 | 16,1 | 16,3 | 16,5 | 16,9 | 17,2 | 17,6 | 17,8 | 18,0 | 18,3 | 18,5 | 18,7 | 19,2 |
| 740  | 13,3 | 13,8 | 14,2 | 14,5 | 14,8 | 15,1 | 15,4 | 15,7 | 16,0 | 16,2 | 16,5 | 16,7 | 17,0 | 17,3 | 17,6 | 17,8 | 17,9 | 18,1 | 18,5 |
| 760  | 12,8 | 13,2 | 13,7 | 14,1 | 14,5 | 14,7 | 15,0 | 15,4 | 15,7 | 16,0 | 16,1 | 16,4 | 16,6 | 16,7 | 17,2 | 17,4 | 17,4 | 17,8 | 18,0 |
| 780  | 12,4 | 12,8 | 13,2 | 13,5 | 13,9 | 14,3 | 14,6 | 14,9 | 15,3 | 15,6 | 15,9 | 16,1 | 16,3 | 16,5 | 16,7 | 16,9 | 17,1 | 17,3 | 17,6 |
| 800  | 11,6 | 12,1 | 12,6 | 12,9 | 13,4 | 13,8 | 14,2 | 14,5 | 14,7 | 15,2 | 15,5 | 15,8 | 15,9 | 16,2 | 16,5 | 16,6 | 16,8 | 16,9 | 17,1 |
| 820  | 10,9 | 11,4 | 11,9 | 12,3 | 12,8 | 13,2 | 13,6 | 14,0 | 14,4 | 14,7 | 15,1 | 15,4 | 15,7 | 15,8 | 16,1 | 16,3 | 16,4 | 16,6 | 16,9 |
| 840  | 10,1 | 10,6 | 11,1 | 11,6 | 12,1 | 12,5 | 13,0 | 13,4 | 13,7 | 14,1 | 14,5 | 15,1 | 15,4 | 15,4 | 15,8 | 15,9 | 16,0 | 16,2 | 16,6 |
| 860  | 9,2  | 9,7  | 10,2 | 10,7 | 11,2 | 11,7 | 12,1 | 12,6 | 13,1 | 13,5 | 13,9 | 14,3 | 14,8 | 15,2 | 15,5 | 15,6 | 15,8 | 16,0 | 16,3 |
| 880  | 8,5  | 8,8  | 9,4  | 9,8  | 10,2 | 10,7 | 11,2 | 11,8 | 12,3 | 12,8 | 13,3 | 13,7 | 14,1 | 14,5 | 15,0 | 15,3 | 15,4 | 15,6 | 15,9 |
| 900  | 7,8  | 8,2  | 8,5  | 8,9  | 9,4  | 9,8  | 10,3 | 10,8 | 11,3 | 11,9 | 12,4 | 13,0 | 13,4 | 13,7 | 14,2 | 14,7 | 15,0 | 15,2 | 15,5 |
| 920  | 7,0  | 7,4  | 7,8  | 8,1  | 8,6  | 8,9  | 9,4  | 9,9  | 10,3 | 10,8 | 11,4 | 12,0 | 12,5 | 12,9 | 13,4 | 14,0 | 14,3 | 14,7 | 15,0 |
| 940  | 6,8  | 6,8  | 7,1  | 7,4  | 7,7  | 8,1  | 8,4  | 8,9  | 9,4  | 9,9  | 10,4 | 11,0 | 11,6 | 12,1 | 12,5 | 13,0 | 13,6 | 13,9 | 14,4 |
| 960  | 6,5  | 6,6  | 6,7  | 6,8  | 7,1  | 7,3  | 7,7  | 8,0  | 8,3  | 8,8  | 9,4  | 10,0 | 10,6 | 11,1 | 11,7 | 12,2 | 12,5 | 13,1 | 13,7 |
| 980  | 6,5  | 6,4  | 6,4  | 6,3  | 6,5  | 6,8  | 6,9  | 7,3  | 7,6  | 7,9  | 8,4  | 8,9  | 9,5  | 9,9  | 10,5 | 11,1 | 11,6 | 12,1 | 12,8 |
| 1000 | 6,7  | 6,5  | 6,5  | 6,3  | 6,2  | 6,2  | 6,4  | 6,5  | 6,8  | 7,2  | 7,5  | 8,0  | 8,4  | 9,5  | 8,9  | 10,0 | 10,5 | 11,0 | 11,6 |
|      | 680  | 690  | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  |



TABLE XIII.

Perturbations produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 11,6 | 12,4 | 12,9 | 13,2 | 13,6 | 13,9 | 14,2 | 14,4 | 14,8 | 15,0 | 15,1 | 15,1 | 15,2 | 15,2 | 15,3 |
| 20   | 10,6 | 11,1 | 11,7 | 12,2 | 12,7 | 13,2 | 13,6 | 13,8 | 14,1 | 14,4 | 14,7 | 14,8 | 15,0 | 14,9 | 14,9 |
| 40   | 9,5  | 10,0 | 10,5 | 11,1 | 11,7 | 12,3 | 12,6 | 13,0 | 13,4 | 13,7 | 14,1 | 14,3 | 14,6 | 14,7 | 14,7 |
| 60   | 8,3  | 8,8  | 9,4  | 9,9  | 10,6 | 11,2 | 11,8 | 12,1 | 12,6 | 12,9 | 13,3 | 13,6 | 13,9 | 14,2 | 14,4 |
| 80   | 7,3  | 7,8  | 8,3  | 8,7  | 9,3  | 10,0 | 10,5 | 11,1 | 11,6 | 12,1 | 12,5 | 12,8 | 13,2 | 13,5 | 13,8 |
| 100  | 6,3  | 6,8  | 7,2  | 7,6  | 8,1  | 8,6  | 9,4  | 9,9  | 10,5 | 10,9 | 11,4 | 12,0 | 12,4 | 12,8 | 13,2 |
| 120  | 5,5  | 5,8  | 6,1  | 6,6  | 7,1  | 7,6  | 8,1  | 8,7  | 9,4  | 9,9  | 10,4 | 10,8 | 11,4 | 11,8 | 12,3 |
| 140  | 5,0  | 5,1  | 5,3  | 5,6  | 6,0  | 6,5  | 7,0  | 7,5  | 8,2  | 8,7  | 9,3  | 9,7  | 10,3 | 10,8 | 11,3 |
| 160  | 4,7  | 4,7  | 4,8  | 4,8  | 5,2  | 5,6  | 5,9  | 6,3  | 6,8  | 7,4  | 8,0  | 8,6  | 9,2  | 9,7  | 10,2 |
| 180  | 4,7  | 4,5  | 4,5  | 4,4  | 4,5  | 4,8  | 5,1  | 5,4  | 5,8  | 6,2  | 6,9  | 7,4  | 8,0  | 8,4  | 9,1  |
| 200  | 5,0  | 4,7  | 4,5  | 4,2  | 4,2  | 4,2  | 4,4  | 4,6  | 5,0  | 5,3  | 5,7  | 6,3  | 6,9  | 7,4  | 7,8  |
| 220  | 5,5  | 5,2  | 4,7  | 4,3  | 4,2  | 4,1  | 4,1  | 4,0  | 4,3  | 4,5  | 4,8  | 5,1  | 5,7  | 6,2  | 6,8  |
| 240  | 6,5  | 5,9  | 5,3  | 4,7  | 4,3  | 4,1  | 4,0  | 3,8  | 3,9  | 4,0  | 4,2  | 4,3  | 4,7  | 5,2  | 5,7  |
| 260  | 7,7  | 6,9  | 6,1  | 5,4  | 4,9  | 4,4  | 4,1  | 3,8  | 3,7  | 3,6  | 3,7  | 3,8  | 4,1  | 4,3  | 4,9  |
| 280  | 8,9  | 8,0  | 7,2  | 6,3  | 5,7  | 5,2  | 4,6  | 4,1  | 3,8  | 3,5  | 3,5  | 3,5  | 3,6  | 3,7  | 3,9  |
| 300  | 10,5 | 9,4  | 8,5  | 7,5  | 6,8  | 6,1  | 5,4  | 4,7  | 4,3  | 3,9  | 3,6  | 3,3  | 3,3  | 3,3  | 3,4  |
| 320  | 12,3 | 11,2 | 10,1 | 9,1  | 8,1  | 7,3  | 6,5  | 5,7  | 5,0  | 4,4  | 4,0  | 3,6  | 3,4  | 3,2  | 3,2  |
| 340  | 13,9 | 12,9 | 11,8 | 10,7 | 9,6  | 8,7  | 7,7  | 6,8  | 6,0  | 5,2  | 4,6  | 4,1  | 3,7  | 3,4  | 3,2  |
| 360  | 15,9 | 14,7 | 13,4 | 12,3 | 11,1 | 10,1 | 9,2  | 8,3  | 7,4  | 6,4  | 5,7  | 4,9  | 4,3  | 3,8  | 3,5  |
| 380  | 17,6 | 16,5 | 15,4 | 14,2 | 13,0 | 11,8 | 10,8 | 9,7  | 8,7  | 7,8  | 6,9  | 6,1  | 5,4  | 4,6  | 4,1  |
| 400  | 19,2 | 18,2 | 17,2 | 16,0 | 14,9 | 13,8 | 12,4 | 11,4 | 10,4 | 9,3  | 8,3  | 7,3  | 6,4  | 5,6  | 5,0  |
| 420  | 20,7 | 19,8 | 18,8 | 17,7 | 16,7 | 15,5 | 14,4 | 13,1 | 11,9 | 10,9 | 9,8  | 8,8  | 8,0  | 6,9  | 6,1  |
| 440  | 22,0 | 21,2 | 20,3 | 19,3 | 18,3 | 17,3 | 16,2 | 14,9 | 13,8 | 12,7 | 11,5 | 10,5 | 9,5  | 8,4  | 7,5  |
| 460  | 23,1 | 22,5 | 21,6 | 20,6 | 19,7 | 18,9 | 17,9 | 16,7 | 15,6 | 14,3 | 13,3 | 12,2 | 10,9 | 10,0 | 9,0  |
| 480  | 24,1 | 23,5 | 22,7 | 22,0 | 21,1 | 20,2 | 19,3 | 18,2 | 17,3 | 16,2 | 15,0 | 13,8 | 12,8 | 11,6 | 10,5 |
| 500  | 24,7 | 24,3 | 23,8 | 23,0 | 22,3 | 21,6 | 20,7 | 19,7 | 18,8 | 17,8 | 16,7 | 15,4 | 14,5 | 13,4 | 12,3 |
| 520  | 25,1 | 24,8 | 24,3 | 23,7 | 23,2 | 22,7 | 21,9 | 21,1 | 20,2 | 19,2 | 18,3 | 17,2 | 16,1 | 15,0 | 14,0 |
| 540  | 25,1 | 25,0 | 24,8 | 24,3 | 23,9 | 23,4 | 22,8 | 22,1 | 21,3 | 20,6 | 19,7 | 18,7 | 17,6 | 16,6 | 15,6 |
| 560  | 24,9 | 24,9 | 24,8 | 24,7 | 24,4 | 24,0 | 23,6 | 22,9 | 22,4 | 21,6 | 20,8 | 20,0 | 19,1 | 18,2 | 17,1 |
| 580  | 24,6 | 24,7 | 24,7 | 24,6 | 24,5 | 24,3 | 23,9 | 23,5 | 23,1 | 22,5 | 21,9 | 21,1 | 20,3 | 19,5 | 18,6 |
| 600  | 24,1 | 24,3 | 24,3 | 24,3 | 24,3 | 24,3 | 24,1 | 23,8 | 23,5 | 23,0 | 22,5 | 22,0 | 21,4 | 20,6 | 19,8 |
| 620  | 23,3 | 23,6 | 23,7 | 23,9 | 24,0 | 24,1 | 24,1 | 23,9 | 23,7 | 23,4 | 23,1 | 22,6 | 22,1 | 21,4 | 20,8 |
| 640  | 22,5 | 22,8 | 23,1 | 23,2 | 23,4 | 23,6 | 23,7 | 23,8 | 23,7 | 23,5 | 23,2 | 22,9 | 22,6 | 22,1 | 21,6 |
| 660  | 21,7 | 22,0 | 22,3 | 22,5 | 22,8 | 23,0 | 23,2 | 23,2 | 23,3 | 23,2 | 23,1 | 23,0 | 22,8 | 22,5 | 22,1 |
| 680  | 20,7 | 21,2 | 21,5 | 21,7 | 22,0 | 22,3 | 22,5 | 22,6 | 22,8 | 22,9 | 22,9 | 22,8 | 22,7 | 22,7 | 22,3 |
| 700  | 20,0 | 20,3 | 20,7 | 20,9 | 21,2 | 21,5 | 21,7 | 21,9 | 22,2 | 22,3 | 22,5 | 22,5 | 22,5 | 22,4 | 22,2 |
| 720  | 19,2 | 19,5 | 19,8 | 20,1 | 20,4 | 20,8 | 21,1 | 21,2 | 21,4 | 21,6 | 21,8 | 21,9 | 22,0 | 22,0 | 22,0 |
| 740  | 18,5 | 18,8 | 19,0 | 19,2 | 19,6 | 19,9 | 20,2 | 20,5 | 20,7 | 20,9 | 21,1 | 21,2 | 21,5 | 21,5 | 21,6 |
| 760  | 18,0 | 18,2 | 18,5 | 18,4 | 18,8 | 19,1 | 19,4 | 19,6 | 19,9 | 20,1 | 20,3 | 20,5 | 20,8 | 21,0 | 21,2 |
| 780  | 17,6 | 17,7 | 17,8 | 18,0 | 18,1 | 18,4 | 18,7 | 18,8 | 19,1 | 19,3 | 19,5 | 19,7 | 20,0 | 20,2 | 20,4 |
| 800  | 17,1 | 17,3 | 17,4 | 17,4 | 17,7 | 17,9 | 18,0 | 18,1 | 18,4 | 18,6 | 18,9 | 18,9 | 19,1 | 19,4 | 19,6 |
| 820  | 16,9 | 17,0 | 17,2 | 17,2 | 17,2 | 17,4 | 17,4 | 17,6 | 17,8 | 17,8 | 18,1 | 18,3 | 18,5 | 18,6 | 18,8 |
| 840  | 16,6 | 16,7 | 16,8 | 16,8 | 16,9 | 17,2 | 17,2 | 17,1 | 17,1 | 17,3 | 17,4 | 17,5 | 17,8 | 17,9 | 18,1 |
| 860  | 16,3 | 16,4 | 16,5 | 16,5 | 16,6 | 16,6 | 16,7 | 16,8 | 16,9 | 16,9 | 17,0 | 17,0 | 17,1 | 17,2 | 17,4 |
| 880  | 15,9 | 16,1 | 16,3 | 16,3 | 16,5 | 16,5 | 16,5 | 16,6 | 16,6 | 16,6 | 16,6 | 16,6 | 16,7 | 16,7 | 16,9 |
| 900  | 15,5 | 15,7 | 15,9 | 16,1 | 16,2 | 16,3 | 16,4 | 16,3 | 16,3 | 16,2 | 16,2 | 16,2 | 16,3 | 16,3 | 16,3 |
| 920  | 15,0 | 15,3 | 15,5 | 15,6 | 15,9 | 16,0 | 16,1 | 16,1 | 16,1 | 16,0 | 16,1 | 16,1 | 16,1 | 16,0 | 16,0 |
| 940  | 14,4 | 14,7 | 14,9 | 15,2 | 15,4 | 15,7 | 15,8 | 15,8 | 16,0 | 15,9 | 15,9 | 15,9 | 15,8 | 15,7 | 15,8 |
| 960  | 13,7 | 14,1 | 14,3 | 14,5 | 14,8 | 15,2 | 15,5 | 15,5 | 15,7 | 15,7 | 15,7 | 15,6 | 15,6 | 15,5 | 15,5 |
| 980  | 12,8 | 13,3 | 13,7 | 13,9 | 14,2 | 14,5 | 14,8 | 15,1 | 15,3 | 15,4 | 15,5 | 15,4 | 15,4 | 15,4 | 15,3 |
| 1000 | 11,6 | 12,4 | 12,9 | 13,2 | 13,6 | 13,9 | 14,2 | 14,4 | 14,8 | 15,0 | 15,1 | 15,1 | 15,2 | 15,2 | 15,3 |
|      | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |



TABLE XIV.

Perturbations produced by *Saturn*.

ARGUMENTS. B and F.

F.

| B    | 000 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 0    | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   | "    |
| 100  | 1,2 | 1,5 | 1,4 | 1,0 | 0,7 | 0,6 | 0,5 | 0,5 | 0,4 | 0,8 | 1,2  |
| 200  | 0,9 | 1,2 | 1,3 | 1,1 | 0,9 | 0,8 | 0,7 | 0,7 | 0,6 | 0,7 | 0,9  |
| 300  | 0,7 | 0,9 | 1,0 | 1,1 | 1,0 | 0,9 | 0,8 | 0,8 | 0,9 | 0,8 | 0,7  |
| 400  | 0,9 | 0,8 | 0,7 | 0,8 | 0,9 | 1,0 | 1,0 | 1,0 | 1,0 | 1,0 | 0,9  |
| 500  | 1,0 | 0,9 | 0,6 | 0,4 | 0,6 | 0,9 | 1,0 | 1,1 | 1,1 | 1,1 | 1,0  |
| 600  | 1,1 | 1,0 | 0,8 | 0,4 | 0,2 | 0,5 | 1,0 | 1,3 | 1,3 | 1,2 | 1,1  |
| 700  | 1,2 | 1,1 | 0,9 | 0,6 | 0,2 | 0,2 | 0,5 | 1,1 | 1,5 | 1,5 | 1,2  |
| 800  | 1,4 | 1,1 | 1,0 | 0,8 | 0,4 | 0,1 | 0,3 | 0,8 | 1,4 | 1,7 | 1,4  |
| 900  | 1,6 | 1,3 | 1,0 | 0,8 | 0,6 | 0,4 | 0,1 | 0,3 | 1,0 | 1,6 | 1,6  |
| 1000 | 1,5 | 1,4 | 1,1 | 0,9 | 0,7 | 0,6 | 0,3 | 0,2 | 0,6 | 1,2 | 1,5  |
| 1100 | 1,2 | 1,5 | 1,4 | 1,0 | 0,7 | 0,6 | 0,5 | 0,5 | 0,4 | 0,8 | 1,2  |

TABLE XV.

Variable Part of the Aberration of the SUN.

ARGUMENT. True Anomaly.

| D. | O-<br>VI+ | I-<br>VII+ | II-<br>VIII+ |    |                                                                                                                                                                                                                                                                 |
|----|-----------|------------|--------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0  | 0,34      | 0,29       | 0,17         | 30 | <p>The constant quantity <math>-20''</math> is contained in the Mean Longitudes: Thus, to find the heliocentric Longitude of the Earth, we omit the variable part of the Aberration, and add to the true place of the Sun <math>180^\circ. 0'. 20''</math>.</p> |
| 3  | 0,33      | 0,28       | 0,15         | 27 |                                                                                                                                                                                                                                                                 |
| 6  | 0,33      | 0,27       | 0,13         | 24 |                                                                                                                                                                                                                                                                 |
| 9  | 0,33      | 0,26       | 0,12         | 21 |                                                                                                                                                                                                                                                                 |
| 12 | 0,33      | 0,25       | 0,10         | 18 |                                                                                                                                                                                                                                                                 |
| 15 | 0,32      | 0,23       | 0,08         | 15 |                                                                                                                                                                                                                                                                 |
| 18 | 0,32      | 0,22       | 0,07         | 12 |                                                                                                                                                                                                                                                                 |
| 21 | 0,31      | 0,21       | 0,05         | 9  |                                                                                                                                                                                                                                                                 |
| 24 | 0,30      | 0,20       | 0,03         | 6  |                                                                                                                                                                                                                                                                 |
| 27 | 0,30      | 0,18       | 0,02         | 3  |                                                                                                                                                                                                                                                                 |
| 30 | 0,29      | 0,17       | 0,00         | 0  |                                                                                                                                                                                                                                                                 |
|    | XI-<br>V+ | X-<br>IV+  | IX-<br>III+  | D. |                                                                                                                                                                                                                                                                 |



TABLE XVI.

Radius Vector in *Natural* Numbers for 1810.

All the Radii have been diminished by 0,00010.00 that the Perturbations may be additive.

| Sig. O.  |            |       |             | Sig. I.    |       |             | Sig. II.   |       |             |      |
|----------|------------|-------|-------------|------------|-------|-------------|------------|-------|-------------|------|
| Deg.     | Rad. Vect. | Diff. | Sec. Var. + | Rad. Vect. | Diff. | Sec. Var. + | Rad. Vect. | Diff. | Sec. Var. ± | Deg. |
| 0        | 0,98310.95 | 0,26  | 4,165       | 0,98543.10 | 15,32 | 3,570       | 0,99171.89 | 25,92 | 1,975       | 30   |
| 1        | 0,98311.21 | 0,80  | 4,164       | 0,98558.42 | 15,75 | 3,531       | 0,99197.81 | 26,16 | 1,909       | 29   |
| 2        | 0,98312.01 | 1,32  | 4,162       | 0,98574.17 | 16,20 | 3,491       | 0,99223.97 | 26,40 | 1,843       | 28   |
| 3        | 0,98313.33 | 1,85  | 4,158       | 0,98590.37 | 16,64 | 3,449       | 0,99250.37 | 26,61 | 1,777       | 27   |
| 4        | 0,98315.18 | 2,38  | 4,154       | 0,98607.01 | 17,06 | 3,407       | 0,99276.98 | 26,83 | 1,710       | 26   |
| 5        | 0,98317.56 | 2,90  | 4,148       | 0,98624.07 | 17,49 | 3,362       | 0,99303.81 | 27,03 | 1,643       | 25   |
| 6        | 0,98320.46 | 3,43  | 4,140       | 0,98641.56 | 17,91 | 3,319       | 0,99330.84 | 27,23 | 1,575       | 24   |
| 7        | 0,98323.89 | 3,96  | 4,131       | 0,98659.47 | 18,32 | 3,273       | 0,99358.07 | 27,41 | 1,506       | 23   |
| 8        | 0,98327.85 | 4,48  | 4,121       | 0,98677.79 | 18,73 | 3,226       | 0,99385.48 | 27,60 | 1,437       | 22   |
| 9        | 0,98332.33 | 5,00  | 4,110       | 0,98696.52 | 19,13 | 3,179       | 0,99413.08 | 27,76 | 1,368       | 21   |
| 10       | 0,98337.33 | 5,52  | 4,097       | 0,98715.65 | 19,53 | 3,130       | 0,99440.84 | 27,93 | 1,299       | 20   |
| 11       | 0,98342.85 | 6,04  | 4,083       | 0,98735.18 | 19,91 | 3,080       | 0,99468.77 | 28,07 | 1,229       | 19   |
| 12       | 0,98348.89 | 6,56  | 4,067       | 0,98755.09 | 20,29 | 3,030       | 0,99496.84 | 28,23 | 1,159       | 18   |
| 13       | 0,98355.45 | 7,07  | 4,050       | 0,98775.38 | 20,67 | 2,978       | 0,99525.07 | 28,35 | 1,088       | 17   |
| 14       | 0,98362.52 | 7,58  | 4,032       | 0,98796.05 | 21,03 | 2,926       | 0,99553.42 | 28,48 | 1,017       | 16   |
| 15       | 0,98370.10 | 8,09  | 4,013       | 0,98817.08 | 21,40 | 2,872       | 0,99581.90 | 28,61 | 0,946       | 15   |
| 16       | 0,98378.19 | 8,60  | 3,992       | 0,98838.48 | 21,75 | 2,818       | 0,99610.51 | 28,70 | 0,874       | 14   |
| 17       | 0,98386.79 | 9,10  | 3,970       | 0,98860.23 | 22,10 | 2,763       | 0,99639.21 | 28,81 | 0,803       | 13   |
| 18       | 0,98395.89 | 9,60  | 3,947       | 0,98882.33 | 22,44 | 2,707       | 0,99668.02 | 28,90 | 0,731       | 12   |
| 19       | 0,98405.49 | 10,10 | 3,922       | 0,98904.77 | 22,77 | 2,650       | 0,99696.92 | 28,98 | 0,659       | 11   |
| 20       | 0,98415.59 | 10,59 | 3,896       | 0,98927.54 | 23,10 | 2,592       | 0,99725.90 | 29,05 | 0,586       | 10   |
| 21       | 0,98426.18 | 11,08 | 3,869       | 0,98950.64 | 23,42 | 2,534       | 0,99754.95 | 29,11 | 0,514       | 9    |
| 22       | 0,98437.26 | 11,57 | 3,841       | 0,98974.06 | 23,72 | 2,474       | 0,99784.06 | 29,17 | 0,441       | 8    |
| 23       | 0,98448.83 | 12,06 | 3,811       | 0,98997.78 | 24,03 | 2,414       | 0,99813.23 | 29,22 | 0,369       | 7    |
| 24       | 0,98460.89 | 12,53 | 3,780       | 0,99021.81 | 24,32 | 2,353       | 0,99842.45 | 29,25 | 0,297       | 6    |
| 25       | 0,98473.42 | 13,00 | 3,748       | 0,99046.13 | 24,61 | 2,292       | 0,99871.70 | 29,28 | 0,224       | 5    |
| 26       | 0,98486.42 | 13,48 | 3,715       | 0,99070.74 | 24,89 | 2,230       | 0,99900.98 | 29,30 | 0,151       | 4    |
| 27       | 0,98499.90 | 13,94 | 3,680       | 0,99095.63 | 25,16 | 2,167       | 0,99930.28 | 29,30 | 0,078       | 3    |
| 28       | 0,98513.84 | 14,41 | 3,645       | 0,99120.79 | 25,42 | 2,103       | 0,99959.58 | 29,31 | 0,006       | 2    |
| 29       | 0,98528.25 | 14,85 | 3,608       | 0,99146.21 | 25,68 | 2,039       | 0,99988.89 | 29,30 | 0,067       | 1    |
| 30       | 0,98543.10 |       | 3,570       | 0,99171.89 |       | 1,975       | 1,00018.19 |       | 0,140       | 0    |
| Sig. XI. |            |       |             | Sig. X.    |       |             | Sig. IX.   |       |             |      |



TABLE XVI.

Continuation of the Radius Vector in *Natural* Numbers.

All the Radii have been diminished by 0,00010.00 that the Perturbations may be additive.

| Sig. III.  |            |       |           | Sig. IV.   |       |           | Sig. V.    |       |           |      |
|------------|------------|-------|-----------|------------|-------|-----------|------------|-------|-----------|------|
| Deg.       | Rad. Vect. | Diff. | Sec. Var. | Rad. Vect. | Diff. | Sec. Var. | Rad. Vect. | Diff. | Sec. Var. | Deg. |
| 0          | 1,00018.19 | 29,28 | 0,140     | 1,00850.41 | 24,82 | 2,184     | 1,01451.00 | 14,02 | 3,640     | 30   |
| 1          | 1,00047.47 | 29,26 | 0,212     | 1,00875.23 | 24,54 | 2,245     | 1,01465.02 | 13,58 | 3,674     | 29   |
| 2          | 1,00076.73 | 29,22 | 0,285     | 1,00899.77 | 24,27 | 2,304     | 1,01478.60 | 13,14 | 3,706     | 28   |
| 3          | 1,00105.95 | 29,18 | 0,357     | 1,00924.04 | 23,98 | 2,363     | 1,01491.74 | 12,69 | 3,738     | 27   |
| 4          | 1,00135.13 | 29,12 | 0,429     | 1,00948.02 | 23,69 | 2,422     | 1,01504.43 | 12,24 | 3,769     | 26   |
| 5          | 1,00164.25 | 29,07 | 0,501     | 1,00971.71 | 23,40 | 2,479     | 1,01516.67 | 11,79 | 3,798     | 25   |
| 6          | 1,00193.32 | 28,99 | 0,573     | 1,00995.11 | 23,08 | 2,536     | 1,01528.46 | 11,33 | 3,826     | 24   |
| 7          | 1,00222.31 | 28,92 | 0,644     | 1,01018.19 | 22,78 | 2,592     | 1,01539.79 | 10,87 | 3,854     | 23   |
| 8          | 1,00251.23 | 28,83 | 0,716     | 1,01040.97 | 22,46 | 2,648     | 1,01550.66 | 10,41 | 3,880     | 22   |
| 9          | 1,00280.06 | 28,73 | 0,788     | 1,01063.43 | 22,13 | 2,702     | 1,01561.07 | 9,95  | 3,905     | 21   |
| 10         | 1,00308.79 | 28,62 | 0,857     | 1,01085.56 | 21,80 | 2,756     | 1,01571.02 | 9,48  | 3,929     | 20   |
| 11         | 1,00337.41 | 28,52 | 0,928     | 1,01107.36 | 21,46 | 2,809     | 1,01580.50 | 9,01  | 3,952     | 19   |
| 12         | 1,00365.93 | 28,39 | 0,998     | 1,01128.82 | 21,12 | 2,861     | 1,01589.51 | 8,53  | 3,973     | 18   |
| 13         | 1,00394.32 | 28,26 | 1,068     | 1,01149.94 | 20,77 | 2,912     | 1,01598.04 | 8,06  | 3,994     | 17   |
| 14         | 1,00422.58 | 28,12 | 1,137     | 1,01170.71 | 20,41 | 2,962     | 1,01606.10 | 7,59  | 4,013     | 16   |
| 15         | 1,00450.70 | 27,98 | 1,206     | 1,01191.12 | 20,06 | 3,012     | 1,01613.69 | 7,10  | 4,032     | 15   |
| 16         | 1,00478.68 | 27,82 | 1,275     | 1,01211.18 | 19,68 | 3,060     | 1,01620.79 | 6,63  | 4,049     | 14   |
| 17         | 1,00506.50 | 27,66 | 1,343     | 1,01230.86 | 19,32 | 3,108     | 1,01627.42 | 6,14  | 4,064     | 13   |
| 18         | 1,00534.16 | 27,49 | 1,411     | 1,01250.18 | 18,93 | 3,155     | 1,01633.56 | 5,65  | 4,079     | 12   |
| 19         | 1,00561.65 | 27,30 | 1,479     | 1,01269.11 | 18,55 | 3,201     | 1,01639.21 | 5,17  | 4,092     | 11   |
| 20         | 1,00588.95 | 27,12 | 1,545     | 1,01287.66 | 18,16 | 3,246     | 1,01644.38 | 4,68  | 4,105     | 10   |
| 21         | 1,00616.07 | 26,92 | 1,612     | 1,01305.82 | 17,77 | 3,289     | 1,01649.06 | 4,19  | 4,117     | 9    |
| 22         | 1,00642.99 | 26,72 | 1,678     | 1,01323.59 | 17,37 | 3,332     | 1,01653.25 | 3,70  | 4,127     | 8    |
| 23         | 1,00669.71 | 26,51 | 1,743     | 1,01340.96 | 16,97 | 3,374     | 1,01656.95 | 3,21  | 4,136     | 7    |
| 24         | 1,00696.22 | 26,29 | 1,808     | 1,01357.93 | 16,56 | 3,415     | 1,01660.16 | 2,72  | 4,143     | 6    |
| 25         | 1,00722.51 | 26,07 | 1,872     | 1,01374.49 | 16,15 | 3,455     | 1,01662.88 | 2,22  | 4,149     | 5    |
| 26         | 1,00748.58 | 25,82 | 1,936     | 1,01390.64 | 15,73 | 3,494     | 1,01665.10 | 1,72  | 4,155     | 4    |
| 27         | 1,00774.40 | 25,59 | 1,999     | 1,01406.37 | 15,30 | 3,532     | 1,01666.82 | 1,25  | 4,159     | 3    |
| 28         | 1,00799.99 | 25,34 | 2,061     | 1,01421.67 | 14,89 | 3,569     | 1,01668.07 | 0,74  | 4,162     | 2    |
| 29         | 1,00825.33 | 25,08 | 2,123     | 1,01436.56 | 14,44 | 3,605     | 1,01668.81 | 0,25  | 4,164     | 1    |
| 30         | 1,00850.41 |       | 2,184     | 1,01451.00 |       | 3,640     | 1,01669.06 |       | 4,164     | 0    |
| Sig. VIII. |            |       |           | Sig. VII.  |       |           | Sig. VI.   |       |           |      |



TABLE XVII.

*Logarithms of the Radius Vector for 1810.*

All the Logarithms have been diminished by 0,00010.00 to make the Perturbations additive.

| Sig. O.  |             |       |             | Sig. I.     |       |             | Sig. II.    |       |             |      |
|----------|-------------|-------|-------------|-------------|-------|-------------|-------------|-------|-------------|------|
| Deg.     | Logarithms. | Diff. | Sec. Var. + | Logarithms. | Diff. | Sec. Var. + | Logarithms. | Diff. | Sec. Var. ± | Deg. |
| 0        | 9,99254.61  |       | 1,846       | 9,99357.03  |       | 1,580       | 9,99633.23  |       | 0,870       | 30   |
| 1        | 9,99254.73  | 0,12  | 1,846       | 9,99363.78  | 6,75  | 1,563       | 9,99644.58  | 11,35 | 0,841       | 29   |
| 2        | 9,99255.08  | 0,35  | 1,846       | 9,99370.72  | 6,94  | 1,545       | 9,99656.04  | 11,46 | 0,812       | 28   |
| 3        | 9,99255.66  | 0,58  | 1,844       | 9,99377.85  | 7,13  | 1,527       | 9,99667.59  | 11,55 | 0,783       | 27   |
|          |             | 0,82  |             |             | 7,33  |             |             | 11,64 |             |      |
| 4        | 9,99256.48  | 1,05  | 1,842       | 9,99385.18  | 7,52  | 1,507       | 9,99679.23  | 11,73 | 0,753       | 26   |
| 5        | 9,99257.53  | 1,28  | 1,839       | 9,99392.70  | 7,70  | 1,488       | 9,99690.96  | 11,82 | 0,723       | 25   |
| 6        | 9,99258.81  |       | 1,836       | 9,99400.40  |       | 1,468       | 9,99702.78  |       | 0,693       | 24   |
|          |             | 1,51  |             |             | 7,88  |             |             | 11,90 |             |      |
| 7        | 9,99260.32  | 1,75  | 1,832       | 9,99408.28  | 8,06  | 1,448       | 9,99714.68  | 11,98 | 0,663       | 23   |
| 8        | 9,99262.07  | 1,98  | 1,827       | 9,99416.34  | 8,24  | 1,427       | 9,99726.66  | 12,06 | 0,632       | 22   |
| 9        | 9,99264.05  |       | 1,822       | 9,99424.58  |       | 1,406       | 9,99738.72  |       | 0,602       | 21   |
|          |             | 2,21  |             |             | 8,42  |             |             | 12,12 |             |      |
| 10       | 9,99266.26  | 2,43  | 1,816       | 9,99433.00  | 8,59  | 1,384       | 9,99750.84  | 12,20 | 0,571       | 20   |
| 11       | 9,99268.69  | 2,67  | 1,810       | 9,99441.59  | 8,75  | 1,362       | 9,99763.04  | 12,25 | 0,540       | 19   |
| 12       | 9,99271.36  |       | 1,803       | 9,99450.34  |       | 1,339       | 9,99775.29  |       | 0,509       | 18   |
|          |             | 2,90  |             |             | 8,92  |             |             | 12,32 |             |      |
| 13       | 9,99274.26  | 3,12  | 1,795       | 9,99459.26  | 9,09  | 1,316       | 9,99787.61  | 12,37 | 0,478       | 17   |
| 14       | 9,99277.38  | 3,35  | 1,787       | 9,99468.35  | 9,25  | 1,293       | 9,99799.98  | 12,42 | 0,447       | 16   |
| 15       | 9,99280.73  |       | 1,779       | 9,99477.60  |       | 1,269       | 9,99812.40  |       | 0,416       | 15   |
|          |             | 3,57  |             |             | 9,40  |             |             | 12,47 |             |      |
| 16       | 9,99284.30  | 3,79  | 1,769       | 9,99487.00  | 9,55  | 1,245       | 9,99824.87  | 12,51 | 0,384       | 14   |
| 17       | 9,99288.09  | 4,02  | 1,757       | 9,99496.55  | 9,71  | 1,220       | 9,99837.38  | 12,56 | 0,353       | 13   |
| 18       | 9,99292.11  |       | 1,749       | 9,99506.26  |       | 1,196       | 9,99849.94  |       | 0,321       | 12   |
|          |             | 4,23  |             |             | 9,85  |             |             | 12,59 |             |      |
| 19       | 9,99296.34  | 4,46  | 1,738       | 9,99516.11  | 10,00 | 1,169       | 9,99862.53  | 12,62 | 0,289       | 11   |
| 20       | 9,99300.80  | 4,67  | 1,726       | 9,99526.11  | 10,14 | 1,144       | 9,99875.15  | 12,65 | 0,257       | 10   |
| 21       | 9,99305.47  |       | 1,714       | 9,99536.25  |       | 1,118       | 9,99887.80  |       | 0,226       | 9    |
|          |             | 4,89  |             |             | 10,27 |             |             | 12,67 |             |      |
| 22       | 9,99310.36  | 5,11  | 1,702       | 9,99546.52  | 10,41 | 1,092       | 9,99900.47  | 12,69 | 0,194       | 8    |
| 23       | 9,99315.47  | 5,31  | 1,688       | 9,99556.93  | 10,54 | 1,065       | 9,99913.16  | 12,71 | 0,162       | 7    |
| 24       | 9,99320.78  |       | 1,674       | 9,99567.47  |       | 1,038       | 9,99925.87  |       | 0,130       | 6    |
|          |             | 5,53  |             |             | 10,66 |             |             | 12,72 |             |      |
| 25       | 9,99326.31  | 5,74  | 1,660       | 9,99578.13  | 10,79 | 1,011       | 9,99938.59  | 12,73 | 0,098       | 5    |
| 26       | 9,99332.05  | 5,94  | 1,645       | 9,99588.92  | 10,91 | 0,983       | 9,99951.32  | 12,73 | 0,066       | 4    |
| 27       | 9,99337.99  |       | 1,630       | 9,99599.83  |       | 0,956       | 9,99964.05  |       | +0,035      | 3    |
|          |             | 6,14  |             |             | 11,02 |             |             | 12,74 |             |      |
| 28       | 9,99344.13  | 6,35  | 1,614       | 9,99610.85  | 11,14 | 0,927       | 9,99976.79  | 12,73 | +0,003      | 2    |
| 29       | 9,99350.48  | 6,55  | 1,597       | 9,99621.99  | 11,24 | 0,899       | 9,99989.52  | 12,72 | -0,029      | 1    |
| 30       | 9,99357.03  |       | 1,580       | 9,99633.23  |       | 0,870       | 0,00002.24  |       | -0,061      | 0    |
| Sig. XI. |             |       |             | Sig. X.     |       |             | Sig. IX.    |       |             |      |



TABLE XVII.

Continuation of the *Logarithms* of the Radius Vector for 1810.

All the Logarithms have been diminished by 0,00010.00 to make the Perturbations additive.

| Sig. III.  |             |       |           | Sig. IV.    |       |           | Sig. V.     |       |           |      |
|------------|-------------|-------|-----------|-------------|-------|-----------|-------------|-------|-----------|------|
| Deg.       | Logarithms. | Diff. | Sec. Var. | Logarithms. | Diff. | Sec. Var. | Logarithms. | Diff. | Sec. Var. | Deg. |
| 0          | 0,00002.24  | 12,71 | 0,061     | 0,00362.07  | 10,69 | 0,946     | 0,00619.91  | 6,00  | 1,565     | 30   |
| 1          | 0,00014.95  | 12,70 | 0,092     | 0,00372.76  | 10,56 | 0,972     | 0,00625.91  | 5,81  | 1,579     | 29   |
| 2          | 0,00027.65  | 12,68 | 0,124     | 0,00383.32  | 10,44 | 0,998     | 0,00631.72  | 5,62  | 1,593     | 28   |
| 3          | 0,00040.33  | 12,65 | 0,156     | 0,00393.76  | 10,32 | 1,023     | 0,00637.34  | 5,43  | 1,607     | 27   |
| 4          | 0,00052.98  | 12,63 | 0,187     | 0,00404.08  | 10,19 | 1,048     | 0,00642.77  | 5,24  | 1,619     | 26   |
| 5          | 0,00065.61  | 12,60 | 0,218     | 0,00414.27  | 10,06 | 1,072     | 0,00648.01  | 5,04  | 1,632     | 25   |
| 6          | 0,00078.21  | 12,56 | 0,249     | 0,00424.33  | 9,93  | 1,097     | 0,00653.05  | 4,85  | 1,644     | 24   |
| 7          | 0,00090.77  | 12,53 | 0,281     | 0,00434.26  | 9,79  | 1,121     | 0,00657.90  | 4,65  | 1,655     | 23   |
| 8          | 0,00103.30  | 12,49 | 0,312     | 0,00444.05  | 9,65  | 1,144     | 0,00662.55  | 4,45  | 1,666     | 22   |
| 9          | 0,00115.79  | 12,44 | 0,343     | 0,00453.70  | 9,51  | 1,168     | 0,00667.00  | 4,26  | 1,677     | 21   |
| 10         | 0,00128.23  | 12,39 | 0,373     | 0,00463.21  | 9,36  | 1,190     | 0,00671.26  | 4,05  | 1,687     | 20   |
| 11         | 0,00140.62  | 12,34 | 0,404     | 0,00472.57  | 9,22  | 1,213     | 0,00675.31  | 3,85  | 1,696     | 19   |
| 12         | 0,00152.96  | 12,28 | 0,434     | 0,00481.79  | 9,06  | 1,235     | 0,00679.16  | 3,65  | 1,706     | 18   |
| 13         | 0,00165.24  | 12,22 | 0,465     | 0,00490.85  | 8,92  | 1,257     | 0,00682.81  | 3,44  | 1,714     | 17   |
| 14         | 0,00177.46  | 12,16 | 0,495     | 0,00499.77  | 8,76  | 1,278     | 0,00686.25  | 3,24  | 1,722     | 16   |
| 15         | 0,00189.62  | 12,09 | 0,525     | 0,00508.53  | 8,61  | 1,299     | 0,00689.49  | 3,04  | 1,730     | 15   |
| 16         | 0,00201.71  | 12,02 | 0,554     | 0,00517.14  | 8,44  | 1,320     | 0,00692.53  | 2,83  | 1,737     | 14   |
| 17         | 0,00213.73  | 11,95 | 0,584     | 0,00525.58  | 8,29  | 1,340     | 0,00695.36  | 2,62  | 1,744     | 13   |
| 18         | 0,00225.68  | 11,87 | 0,613     | 0,00533.87  | 8,12  | 1,360     | 0,00697.98  | 2,42  | 1,750     | 12   |
| 19         | 0,00237.55  | 11,79 | 0,642     | 0,00541.99  | 7,95  | 1,379     | 0,00700.40  | 2,21  | 1,756     | 11   |
| 20         | 0,00249.34  | 11,71 | 0,671     | 0,00549.94  | 7,79  | 1,398     | 0,00702.61  | 2,00  | 1,761     | 10   |
| 21         | 0,00261.05  | 11,62 | 0,700     | 0,00557.73  | 7,61  | 1,417     | 0,00704.61  | 1,79  | 1,766     | 9    |
| 22         | 0,00272.67  | 11,53 | 0,728     | 0,00565.34  | 7,45  | 1,435     | 0,00706.40  | 1,58  | 1,770     | 8    |
| 23         | 0,00284.20  | 11,43 | 0,756     | 0,00572.79  | 7,27  | 1,453     | 0,00707.98  | 1,37  | 1,774     | 7    |
| 24         | 0,00295.63  | 11,33 | 0,784     | 0,00580.06  | 7,09  | 1,470     | 0,00709.35  | 1,16  | 1,777     | 6    |
| 25         | 0,00306.96  | 11,24 | 0,812     | 0,00587.15  | 6,92  | 1,487     | 0,00710.51  | 0,95  | 1,779     | 5    |
| 26         | 0,00318.20  | 11,13 | 0,839     | 0,00594.07  | 6,73  | 1,504     | 0,00711.46  | 0,74  | 1,782     | 4    |
| 27         | 0,00329.33  | 11,03 | 0,866     | 0,00600.80  | 6,56  | 1,520     | 0,00712.20  | 0,53  | 1,784     | 3    |
| 28         | 0,00340.36  | 10,91 | 0,893     | 0,00607.36  | 6,37  | 1,535     | 0,00712.73  | 0,31  | 1,786     | 2    |
| 29         | 0,00351.27  | 10,80 | 0,920     | 0,00613.73  | 6,18  | 1,550     | 0,00713.04  | 0,11  | 1,786     | 1    |
| 30         | 0,00362.07  |       | 0,946     | 0,00619.91  |       | 1,565     | 0,00713.15  |       | 1,786     | 0    |
| Sig. VIII. |             |       |           | Sig. VII.   |       |           | Sig. VI.    |       |           |      |



## TAB. XVIII.

Perturbations of the  
Rad. Vec. by the  
Moon, 1st Part.

Argument A.

|     |      |      |
|-----|------|------|
| 0   | 1000 | 7,43 |
| 10  | 990  | 7,42 |
| 20  | 980  | 7,40 |
| 30  | 970  | 7,37 |
| 40  | 960  | 7,32 |
| 50  | 950  | 7,26 |
| 60  | 940  | 7,18 |
| 70  | 930  | 7,09 |
| 80  | 920  | 6,99 |
| 90  | 910  | 6,87 |
| 100 | 900  | 6,74 |
| 110 | 890  | 6,60 |
| 120 | 880  | 6,45 |
| 130 | 870  | 6,29 |
| 140 | 860  | 6,12 |
| 150 | 850  | 5,94 |
| 160 | 840  | 5,75 |
| 170 | 830  | 5,55 |
| 180 | 820  | 5,35 |
| 190 | 810  | 5,14 |
| 200 | 800  | 4,92 |
| 210 | 790  | 4,70 |
| 220 | 780  | 4,48 |
| 230 | 770  | 4,26 |
| 240 | 760  | 4,03 |
| 250 | 750  | 3,80 |
| 260 | 740  | 3,57 |
| 270 | 730  | 3,34 |
| 280 | 720  | 3,12 |
| 290 | 710  | 2,90 |
| 300 | 700  | 2,68 |
| 310 | 690  | 2,46 |
| 320 | 680  | 2,25 |
| 330 | 670  | 2,05 |
| 340 | 660  | 1,85 |
| 350 | 650  | 1,66 |
| 360 | 640  | 1,48 |
| 370 | 630  | 1,31 |
| 380 | 620  | 1,15 |
| 390 | 610  | 1,00 |
| 400 | 600  | 0,86 |
| 410 | 590  | 0,71 |
| 420 | 580  | 0,61 |
| 430 | 570  | 0,51 |
| 440 | 560  | 0,42 |
| 450 | 550  | 0,34 |
| 460 | 540  | 0,28 |
| 470 | 530  | 0,23 |
| 480 | 520  | 0,19 |
| 490 | 510  | 0,17 |
| 500 | 500  | 0,16 |

## Continuation of TABLE XVIII.

Lunar Equation of the Radius Vector. Second Part.

ARGUMENTS. First Part of the Equation of the Radius Vector, and  
Mean Anomaly of the Sun.

## FIRST PART.

| Sun's Mean Anomaly.   | 8,00<br>+ | 7,00<br>+ | 6,00<br>+ | 5,00<br>+ | 4,00      | 3,00<br>- | 2,00<br>- | 1,00<br>- | 0<br>-    |                        |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|
| S. D. S.<br>O. o. XII | +0,07     | 0,05      | 0,04      | 0,02      | 0         | 0,01      | 0,03      | 0,05      | 0,06      | S. D. S.<br>VI. o. VI. |
| 15.<br>I. o. XI       | 7<br>6    | 5<br>5    | 4<br>3    | 2<br>2    | 0<br>0    | 1<br>1    | 3<br>3    | 5<br>4    | 0,06<br>6 | 15.<br>V. o. VII       |
| 15.<br>II. o. X       | 5<br>4    | 4<br>3    | 3<br>2    | 1<br>1    | 0<br>0    | 1<br>1    | 2<br>2    | 3<br>2    | 5<br>3    | 15.<br>IV. o. VIII     |
| 15.<br>III. o. IX     | 2<br>0    | 1<br>0    | 1<br>0    | 1<br>0    | 0<br>0    | 0<br>0    | 1<br>0    | 1<br>0    | 2<br>0    | 15.<br>III. o. IX.     |
|                       | -<br>8,00 | -<br>7,00 | -<br>6,00 | -<br>5,00 | -<br>4,00 | +<br>3,00 | +<br>2,00 | +<br>1,00 | +<br>0    | Sun's Mean Anomaly.    |

When the Mean Anomaly is on the *left*, we take the Signs at the *top*; when on the *right*, we take those *below*.

## Continuation of TABLE XVIII.

Lunar Equation of the Radius Vector. Third Part.

ARGUMENTS. M and A.

## A

| M    | 0    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 0,04 | 0,06 | 0,12 | 0,20 | 0,26 | 0,30 | 0,34 | 0,40 | 0,48 | 0,54 | 0,56 | 1000 |
| 50   | 0,05 | 0,07 | 0,12 | 0,20 | 0,25 | 0,30 | 0,34 | 0,40 | 0,46 | 0,52 | 0,55 | 950  |
| 100  | 0,08 | 0,09 | 0,14 | 0,20 | 0,25 | 0,30 | 0,33 | 0,37 | 0,43 | 0,48 | 0,52 | 900  |
| 150  | 0,14 | 0,14 | 0,17 | 0,22 | 0,25 | 0,30 | 0,32 | 0,36 | 0,38 | 0,43 | 0,46 | 850  |
| 200  | 0,20 | 0,20 | 0,22 | 0,28 | 0,28 | 0,30 | 0,30 | 0,31 | 0,33 | 0,37 | 0,40 | 800  |
| 250  | 0,27 | 0,26 | 0,27 | 0,29 | 0,30 | 0,30 | 0,29 | 0,28 | 0,28 | 0,30 | 0,33 | 750  |
| 300  | 0,34 | 0,33 | 0,32 | 0,32 | 0,32 | 0,30 | 0,27 | 0,24 | 0,23 | 0,24 | 0,25 | 700  |
| 350  | 0,41 | 0,39 | 0,37 | 0,36 | 0,33 | 0,30 | 0,26 | 0,21 | 0,19 | 0,18 | 0,19 | 650  |
| 400  | 0,46 | 0,45 | 0,42 | 0,38 | 0,35 | 0,30 | 0,24 | 0,20 | 0,16 | 0,14 | 0,14 | 600  |
| 450  | 0,49 | 0,48 | 0,45 | 0,41 | 0,35 | 0,30 | 0,24 | 0,19 | 0,14 | 0,11 | 0,11 | 550  |
| 500  | 0,50 | 0,49 | 0,47 | 0,42 | 0,36 | 0,30 | 0,24 | 0,18 | 0,13 | 0,11 | 0,10 | 500  |
| 550  | 0,49 | 0,49 | 0,46 | 0,41 | 0,36 | 0,30 | 0,25 | 0,19 | 0,15 | 0,12 | 0,11 | 450  |
| 600  | 0,46 | 0,46 | 0,44 | 0,40 | 0,36 | 0,30 | 0,25 | 0,22 | 0,18 | 0,16 | 0,14 | 400  |
| 650  | 0,41 | 0,42 | 0,41 | 0,39 | 0,34 | 0,30 | 0,27 | 0,24 | 0,23 | 0,21 | 0,19 | 350  |
| 700  | 0,34 | 0,36 | 0,37 | 0,36 | 0,33 | 0,30 | 0,28 | 0,28 | 0,28 | 0,27 | 0,26 | 300  |
| 750  | 0,27 | 0,30 | 0,32 | 0,32 | 0,31 | 0,30 | 0,30 | 0,31 | 0,33 | 0,34 | 0,33 | 250  |
| 800  | 0,20 | 0,23 | 0,27 | 0,29 | 0,30 | 0,30 | 0,32 | 0,36 | 0,38 | 0,40 | 0,40 | 200  |
| 850  | 0,14 | 0,17 | 0,22 | 0,25 | 0,28 | 0,30 | 0,35 | 0,38 | 0,43 | 0,46 | 0,46 | 150  |
| 900  | 0,08 | 0,12 | 0,17 | 0,23 | 0,27 | 0,30 | 0,35 | 0,40 | 0,46 | 0,51 | 0,52 | 100  |
| 950  | 0,05 | 0,08 | 0,14 | 0,20 | 0,26 | 0,30 | 0,35 | 0,40 | 0,48 | 0,53 | 0,55 | 50   |
| 1000 | 0,04 | 0,06 | 0,12 | 0,20 | 0,26 | 0,30 | 0,34 | 0,40 | 0,48 | 0,54 | 0,56 | 0    |
| 1000 | 950  | 900  | 850  | 800  | 750  | 700  | 650  | 600  | 550  | 500  |      |      |



TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 4,27 | 4,35 | 4,36 | 4,34 | 4,26 | 4,10 | 3,94 | 3,76 | 3,53 | 3,30 | 3,04 | 2,79 | 2,52 | 2,27 |
| 20   | 3,92 | 4,08 | 4,22 | 4,28 | 4,29 | 4,26 | 4,19 | 4,05 | 3,90 | 3,72 | 3,50 | 3,26 | 3,04 | 2,80 |
| 40   | 3,42 | 3,64 | 3,85 | 4,03 | 4,15 | 4,21 | 4,22 | 4,19 | 4,11 | 4,01 | 3,85 | 3,68 | 3,48 | 3,25 |
| 60   | 2,86 | 3,12 | 3,38 | 3,59 | 3,80 | 3,95 | 4,07 | 4,15 | 4,16 | 4,13 | 4,05 | 3,92 | 3,78 | 3,62 |
| 80   | 2,36 | 2,62 | 2,86 | 3,11 | 3,34 | 3,57 | 3,75 | 3,89 | 4,02 | 4,07 | 4,09 | 4,06 | 3,98 | 3,87 |
| 100  | 2,00 | 2,17 | 2,38 | 2,62 | 2,86 | 3,09 | 3,33 | 3,53 | 3,70 | 3,85 | 3,94 | 4,00 | 4,03 | 3,99 |
| 120  | 1,72 | 1,89 | 2,05 | 2,22 | 2,44 | 2,64 | 2,86 | 3,10 | 3,32 | 3,50 | 3,68 | 3,80 | 3,90 | 3,94 |
| 140  | 1,60 | 1,65 | 1,79 | 1,95 | 2,11 | 2,30 | 2,48 | 2,69 | 2,89 | 3,10 | 3,31 | 3,46 | 3,65 | 3,76 |
| 160  | 1,43 | 1,51 | 1,67 | 1,74 | 1,86 | 2,01 | 2,17 | 2,34 | 2,52 | 2,73 | 2,92 | 3,12 | 3,32 | 3,50 |
| 180  | 1,34 | 1,40 | 1,48 | 1,58 | 1,73 | 1,80 | 1,93 | 2,08 | 2,24 | 2,41 | 2,60 | 2,77 | 2,96 | 3,15 |
| 200  | 1,27 | 1,32 | 1,39 | 1,45 | 1,54 | 1,64 | 1,80 | 1,86 | 2,01 | 2,17 | 2,30 | 2,48 | 2,66 | 2,84 |
| 220  | 1,19 | 1,22 | 1,27 | 1,35 | 1,41 | 1,51 | 1,59 | 1,68 | 1,86 | 1,95 | 2,07 | 2,23 | 2,40 | 2,55 |
| 240  | 1,13 | 1,13 | 1,17 | 1,22 | 1,25 | 1,34 | 1,43 | 1,53 | 1,64 | 1,73 | 1,92 | 2,00 | 2,13 | 2,31 |
| 260  | 1,09 | 1,07 | 1,07 | 1,09 | 1,13 | 1,20 | 1,25 | 1,25 | 1,45 | 1,55 | 1,67 | 1,81 | 1,97 | 2,06 |
| 280  | 1,14 | 1,07 | 1,03 | 1,02 | 1,02 | 1,05 | 1,09 | 1,16 | 1,26 | 1,24 | 1,18 | 1,56 | 1,70 | 1,84 |
| 300  | 1,30 | 1,18 | 1,18 | 1,08 | 0,98 | 0,95 | 0,98 | 1,00 | 1,04 | 1,14 | 1,20 | 1,32 | 1,44 | 1,58 |
| 320  | 1,55 | 1,36 | 1,25 | 1,13 | 1,02 | 0,95 | 0,91 | 0,90 | 0,92 | 0,95 | 1,01 | 1,10 | 1,18 | 1,19 |
| 340  | 1,99 | 1,74 | 1,53 | 1,31 | 1,23 | 1,08 | 0,98 | 0,90 | 0,85 | 0,83 | 0,84 | 0,90 | 0,96 | 1,05 |
| 360  | 2,49 | 2,27 | 1,98 | 1,74 | 1,52 | 1,28 | 1,17 | 1,05 | 0,92 | 0,85 | 0,80 | 0,77 | 0,80 | 0,83 |
| 380  | 3,13 | 2,85 | 2,50 | 2,27 | 2,00 | 1,74 | 1,50 | 1,26 | 1,14 | 1,00 | 0,89 | 0,80 | 0,75 | 0,72 |
| 400  | 3,73 | 3,44 | 3,15 | 2,88 | 2,53 | 2,29 | 2,02 | 1,75 | 1,51 | 1,25 | 1,11 | 0,96 | 0,83 | 0,75 |
| 420  | 4,24 | 4,02 | 3,78 | 3,49 | 3,20 | 2,90 | 2,56 | 2,32 | 2,04 | 1,78 | 1,51 | 1,24 | 1,11 | 0,94 |
| 440  | 4,64 | 4,48 | 4,28 | 4,04 | 3,81 | 3,54 | 3,13 | 2,95 | 2,60 | 2,36 | 2,06 | 1,79 | 1,53 | 1,24 |
| 460  | 4,87 | 4,74 | 4,66 | 4,50 | 4,29 | 4,07 | 3,83 | 3,56 | 3,28 | 2,99 | 2,64 | 2,39 | 2,09 | 1,82 |
| 480  | 4,96 | 4,94 | 4,86 | 4,77 | 4,67 | 4,51 | 4,32 | 4,12 | 3,86 | 3,59 | 3,31 | 3,03 | 2,68 | 2,44 |
| 500  | 4,88 | 4,90 | 4,88 | 4,84 | 4,78 | 4,75 | 4,66 | 4,52 | 4,33 | 4,13 | 3,90 | 3,63 | 3,36 | 3,08 |
| 520  | 4,74 | 4,81 | 4,86 | 4,91 | 4,90 | 4,89 | 4,85 | 4,76 | 4,65 | 4,52 | 4,34 | 4,15 | 3,93 | 3,67 |
| 540  | 4,51 | 4,62 | 4,70 | 4,81 | 4,85 | 4,89 | 4,88 | 4,88 | 4,81 | 4,74 | 4,66 | 4,51 | 4,36 | 4,16 |
| 560  | 4,28 | 4,38 | 4,51 | 4,60 | 4,70 | 4,77 | 4,82 | 4,86 | 4,86 | 4,85 | 4,80 | 4,72 | 4,64 | 4,52 |
| 580  | 4,02 | 4,16 | 4,28 | 4,40 | 4,50 | 4,60 | 4,68 | 4,75 | 4,80 | 4,85 | 4,84 | 4,83 | 4,79 | 4,70 |
| 600  | 3,82 | 3,92 | 4,04 | 4,18 | 4,30 | 4,39 | 4,50 | 4,60 | 4,66 | 4,74 | 4,77 | 4,81 | 4,82 | 4,80 |
| 620  | 3,54 | 3,71 | 3,86 | 3,97 | 4,10 | 4,20 | 4,30 | 4,40 | 4,51 | 4,59 | 4,66 | 4,72 | 4,75 | 4,79 |
| 640  | 3,28 | 3,41 | 3,58 | 3,73 | 3,89 | 4,02 | 4,12 | 4,23 | 4,34 | 4,42 | 4,51 | 4,59 | 4,66 | 4,71 |
| 660  | 2,82 | 3,04 | 3,20 | 3,43 | 3,60 | 3,76 | 3,91 | 4,05 | 4,15 | 4,26 | 4,36 | 4,43 | 4,52 | 4,60 |
| 680  | 2,34 | 2,59 | 2,81 | 3,04 | 3,19 | 3,45 | 3,61 | 3,79 | 3,95 | 4,07 | 4,19 | 4,28 | 4,37 | 4,46 |
| 700  | 1,82 | 2,02 | 2,32 | 2,56 | 2,79 | 3,03 | 3,19 | 3,44 | 3,64 | 3,81 | 3,97 | 4,10 | 4,23 | 4,33 |
| 720  | 1,31 | 1,50 | 1,76 | 1,97 | 2,27 | 2,54 | 2,78 | 3,00 | 3,19 | 3,46 | 3,64 | 3,83 | 4,00 | 4,14 |
| 740  | 0,80 | 0,99 | 1,24 | 1,45 | 1,70 | 1,92 | 2,22 | 2,51 | 2,74 | 2,99 | 3,17 | 3,45 | 3,63 | 3,82 |
| 760  | 0,42 | 0,56 | 0,73 | 0,93 | 1,19 | 1,39 | 1,65 | 1,86 | 2,18 | 2,44 | 2,71 | 2,98 | 3,16 | 3,44 |
| 780  | 0,24 | 0,28 | 0,39 | 0,52 | 0,67 | 0,87 | 1,13 | 1,33 | 1,61 | 1,81 | 2,13 | 2,41 | 2,67 | 2,94 |
| 800  | 0,25 | 0,23 | 0,22 | 0,28 | 0,36 | 0,47 | 0,64 | 0,82 | 1,07 | 1,29 | 1,53 | 1,74 | 2,06 | 2,36 |
| 820  | 0,50 | 0,38 | 0,29 | 0,24 | 0,23 | 0,26 | 0,32 | 0,44 | 0,60 | 0,78 | 1,02 | 1,23 | 1,48 | 1,69 |
| 840  | 0,96 | 0,72 | 0,55 | 0,41 | 0,31 | 0,27 | 0,21 | 0,24 | 0,32 | 0,41 | 0,55 | 0,74 | 0,98 | 1,17 |
| 860  | 1,62 | 1,30 | 1,02 | 0,78 | 0,60 | 0,45 | 0,34 | 0,30 | 0,25 | 0,25 | 0,31 | 0,39 | 0,53 | 0,69 |
| 880  | 2,23 | 1,94 | 1,69 | 1,36 | 1,11 | 0,85 | 0,65 | 0,51 | 0,38 | 0,31 | 0,26 | 0,27 | 0,30 | 0,39 |
| 900  | 2,90 | 2,61 | 2,30 | 1,99 | 1,76 | 1,43 | 1,18 | 0,93 | 0,73 | 0,56 | 0,41 | 0,34 | 0,29 | 0,28 |
| 920  | 3,50 | 3,24 | 2,97 | 2,66 | 2,36 | 2,06 | 1,83 | 1,50 | 1,26 | 1,02 | 0,81 | 0,61 | 0,47 | 0,39 |
| 940  | 4,01 | 3,80 | 3,54 | 3,26 | 3,00 | 2,72 | 2,41 | 2,14 | 1,89 | 1,57 | 1,32 | 1,09 | 0,87 | 0,68 |
| 960  | 4,33 | 4,19 | 4,01 | 3,80 | 3,54 | 3,28 | 3,01 | 2,74 | 2,45 | 2,17 | 1,96 | 1,65 | 1,39 | 1,15 |
| 980  | 4,45 | 4,38 | 4,29 | 4,15 | 3,98 | 3,78 | 3,55 | 3,30 | 3,03 | 2,77 | 2,49 | 2,22 | 2,02 | 1,71 |
| 1000 | 4,27 | 4,35 | 4,36 | 4,34 | 4,26 | 4,10 | 3,94 | 3,76 | 3,53 | 3,30 | 3,04 | 2,79 | 2,52 | 2,27 |
|      | 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  |



TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 130  | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 2,27 | 2,06 | 1,75 | 1,53 | 1,29 | 1,09 | 0,91 | 0,74 | 0,60 | 0,51 | 0,46 | 0,44 | 0,46 | 0,52 | 0,62 | 0,80 | 0,94 | 1,12 | 1,30 |
| 20   | 2,80 | 2,56 | 2,31 | 2,09 | 1,80 | 1,66 | 1,35 | 1,15 | 0,98 | 0,81 | 0,70 | 0,57 | 0,51 | 0,47 | 0,50 | 0,56 | 0,63 | 0,80 | 0,93 |
| 40   | 3,25 | 3,04 | 2,81 | 2,56 | 2,32 | 2,13 | 1,84 | 1,62 | 1,40 | 1,22 | 0,94 | 0,88 | 0,77 | 0,64 | 0,58 | 0,44 | 0,54 | 0,58 | 0,66 |
| 60   | 3,62 | 3,44 | 3,23 | 3,02 | 2,81 | 2,56 | 2,33 | 2,17 | 1,89 | 1,67 | 1,46 | 1,26 | 1,10 | 0,94 | 0,83 | 0,70 | 0,63 | 0,59 | 0,59 |
| 80   | 3,87 | 3,71 | 3,57 | 3,37 | 3,20 | 2,99 | 2,79 | 2,56 | 2,33 | 2,17 | 1,91 | 1,70 | 1,49 | 1,32 | 1,15 | 1,01 | 0,82 | 0,78 | 0,69 |
| 100  | 3,99 | 3,91 | 3,80 | 3,65 | 3,49 | 3,34 | 3,14 | 2,95 | 2,75 | 2,55 | 2,35 | 2,19 | 1,93 | 1,73 | 1,53 | 1,36 | 1,21 | 1,05 | 0,77 |
| 120  | 3,94 | 3,95 | 3,91 | 3,83 | 3,72 | 3,58 | 3,43 | 3,27 | 3,09 | 2,90 | 2,73 | 2,52 | 2,34 | 2,19 | 1,93 | 1,76 | 1,57 | 1,40 | 1,25 |
| 140  | 3,76 | 3,86 | 3,88 | 3,88 | 3,84 | 3,77 | 3,65 | 3,52 | 3,37 | 3,18 | 3,01 | 2,85 | 2,68 | 2,49 | 2,28 | 2,12 | 1,87 | 1,67 | 1,48 |
| 160  | 3,50 | 3,63 | 3,75 | 3,86 | 3,84 | 3,82 | 3,77 | 3,69 | 3,58 | 3,44 | 3,29 | 3,11 | 2,94 | 2,78 | 2,63 | 2,45 | 2,28 | 2,15 | 1,93 |
| 180  | 3,15 | 3,33 | 3,49 | 3,65 | 3,72 | 3,78 | 3,79 | 3,77 | 3,70 | 3,63 | 3,51 | 3,36 | 3,22 | 3,05 | 2,86 | 2,62 | 2,55 | 2,40 | 2,23 |
| 200  | 2,84 | 3,00 | 3,18 | 3,35 | 3,51 | 3,64 | 3,73 | 3,77 | 3,76 | 3,73 | 3,66 | 3,57 | 3,42 | 3,29 | 3,14 | 2,98 | 2,80 | 2,64 | 2,48 |
| 220  | 2,55 | 2,72 | 2,91 | 3,07 | 3,22 | 3,38 | 3,52 | 3,62 | 3,72 | 3,76 | 3,74 | 3,71 | 3,61 | 3,49 | 3,37 | 3,22 | 3,07 | 2,90 | 2,73 |
| 240  | 2,31 | 2,46 | 2,63 | 2,80 | 2,98 | 3,14 | 3,29 | 3,44 | 3,55 | 3,65 | 3,71 | 3,74 | 3,73 | 3,68 | 3,58 | 3,46 | 3,30 | 3,15 | 2,96 |
| 260  | 2,06 | 2,21 | 2,36 | 2,51 | 2,70 | 2,88 | 3,04 | 3,21 | 3,36 | 3,48 | 3,58 | 3,67 | 3,72 | 3,75 | 3,72 | 3,64 | 3,55 | 3,42 | 3,25 |
| 280  | 1,84 | 2,03 | 2,12 | 2,28 | 2,44 | 2,59 | 2,86 | 2,93 | 3,13 | 3,26 | 3,41 | 3,54 | 3,58 | 3,70 | 3,75 | 3,76 | 3,71 | 3,63 | 3,52 |
| 300  | 1,58 | 1,72 | 1,87 | 2,07 | 2,17 | 2,32 | 2,51 | 2,66 | 2,82 | 3,00 | 3,18 | 3,34 | 3,48 | 3,61 | 3,69 | 3,76 | 3,78 | 3,76 | 3,72 |
| 320  | 1,19 | 1,44 | 1,56 | 1,73 | 1,81 | 2,12 | 2,22 | 2,30 | 2,56 | 2,72 | 2,90 | 3,08 | 3,24 | 3,40 | 3,55 | 3,66 | 3,77 | 3,81 | 3,82 |
| 340  | 1,05 | 1,14 | 1,27 | 1,41 | 1,56 | 1,74 | 1,90 | 2,13 | 2,27 | 2,43 | 2,62 | 2,80 | 2,97 | 3,13 | 3,32 | 3,47 | 3,72 | 3,75 | 3,82 |
| 360  | 0,83 | 0,90 | 1,01 | 1,10 | 1,24 | 1,38 | 1,54 | 1,72 | 1,90 | 2,14 | 2,29 | 2,48 | 2,67 | 2,86 | 3,01 | 3,20 | 3,38 | 3,55 | 3,68 |
| 380  | 0,72 | 0,73 | 0,77 | 0,84 | 0,95 | 1,04 | 1,20 | 1,35 | 1,51 | 1,71 | 1,91 | 2,16 | 2,30 | 2,51 | 2,71 | 2,90 | 3,10 | 3,27 | 3,44 |
| 400  | 0,75 | 0,70 | 0,67 | 0,68 | 0,70 | 0,79 | 0,89 | 0,99 | 1,15 | 1,31 | 1,48 | 1,70 | 1,88 | 2,16 | 2,32 | 2,53 | 2,75 | 2,94 | 3,13 |
| 420  | 0,94 | 0,80 | 0,71 | 0,66 | 0,62 | 0,62 | 0,65 | 0,72 | 0,73 | 0,95 | 1,09 | 1,26 | 1,44 | 1,64 | 1,87 | 2,14 | 2,33 | 2,54 | 2,77 |
| 440  | 1,24 | 1,09 | 0,91 | 0,77 | 0,67 | 0,59 | 0,57 | 0,57 | 0,60 | 0,65 | 0,78 | 0,89 | 1,04 | 1,21 | 1,41 | 1,61 | 1,83 | 2,12 | 2,30 |
| 460  | 1,82 | 1,55 | 1,25 | 1,09 | 0,91 | 0,75 | 0,64 | 0,56 | 0,51 | 0,53 | 0,53 | 0,61 | 0,70 | 0,82 | 0,99 | 1,15 | 1,35 | 1,58 | 1,79 |
| 480  | 2,44 | 2,14 | 1,86 | 1,58 | 1,28 | 1,10 | 0,91 | 0,73 | 0,61 | 0,53 | 0,47 | 0,45 | 0,50 | 0,55 | 0,66 | 0,77 | 0,92 | 1,11 | 1,30 |
| 500  | 3,08 | 2,73 | 2,48 | 2,18 | 1,89 | 1,61 | 1,32 | 1,12 | 0,90 | 0,72 | 0,60 | 0,50 | 0,44 | 0,42 | 0,43 | 0,49 | 0,59 | 0,69 | 0,86 |
| 520  | 3,67 | 3,40 | 3,12 | 2,82 | 2,52 | 2,22 | 1,93 | 1,65 | 1,35 | 1,16 | 0,92 | 0,74 | 0,58 | 0,47 | 0,41 | 0,38 | 0,37 | 0,43 | 0,54 |
| 540  | 4,16 | 3,96 | 3,70 | 3,43 | 3,17 | 2,82 | 2,57 | 2,27 | 1,98 | 1,69 | 1,38 | 1,19 | 0,97 | 0,74 | 0,59 | 0,47 | 0,39 | 0,36 | 0,35 |
| 560  | 4,52 | 4,36 | 4,19 | 3,98 | 3,74 | 3,47 | 3,20 | 2,87 | 2,62 | 2,32 | 2,05 | 1,74 | 1,42 | 1,22 | 0,99 | 0,77 | 0,60 | 0,46 | 0,37 |
| 580  | 4,70 | 4,61 | 4,50 | 4,36 | 4,19 | 3,99 | 3,77 | 3,51 | 3,23 | 2,91 | 2,68 | 2,37 | 2,08 | 1,79 | 1,47 | 1,26 | 1,02 | 0,81 | 0,61 |
| 600  | 4,80 | 4,75 | 4,69 | 4,61 | 4,49 | 4,36 | 4,20 | 4,01 | 3,78 | 3,55 | 3,29 | 2,96 | 2,72 | 2,42 | 2,12 | 1,85 | 1,53 | 1,31 | 1,08 |
| 620  | 4,79 | 4,79 | 4,78 | 4,73 | 4,67 | 4,59 | 4,48 | 4,35 | 4,20 | 4,03 | 3,79 | 3,56 | 3,23 | 3,00 | 2,77 | 2,49 | 2,20 | 1,89 | 1,57 |
| 640  | 4,71 | 4,74 | 4,76 | 4,76 | 4,74 | 4,72 | 4,64 | 4,57 | 4,47 | 4,33 | 4,19 | 4,02 | 3,83 | 3,58 | 3,36 | 3,04 | 2,81 | 2,53 | 2,25 |
| 660  | 4,60 | 4,74 | 4,71 | 4,72 | 4,74 | 4,73 | 4,73 | 4,69 | 4,63 | 4,55 | 4,45 | 4,32 | 4,17 | 4,02 | 3,93 | 3,62 | 3,38 | 3,07 | 2,86 |
| 680  | 4,46 | 4,54 | 4,60 | 4,76 | 4,69 | 4,71 | 4,73 | 4,71 | 4,69 | 4,66 | 4,59 | 4,53 | 4,43 | 4,31 | 4,16 | 4,03 | 3,82 | 3,63 | 3,41 |
| 700  | 4,33 | 4,40 | 4,45 | 4,54 | 4,61 | 4,66 | 4,70 | 4,70 | 4,72 | 4,70 | 4,67 | 4,64 | 4,61 | 4,48 | 4,42 | 4,28 | 4,16 | 4,00 | 3,82 |
| 720  | 4,14 | 4,24 | 4,33 | 4,41 | 4,48 | 4,56 | 4,62 | 4,64 | 4,68 | 4,70 | 4,71 | 4,70 | 4,65 | 4,60 | 4,54 | 4,48 | 4,38 | 4,28 | 4,15 |
| 740  | 3,82 | 4,02 | 4,14 | 4,27 | 4,39 | 4,47 | 4,52 | 4,59 | 4,62 | 4,65 | 4,68 | 4,69 | 4,70 | 4,67 | 4,65 | 4,60 | 4,51 | 4,45 | 4,37 |
| 760  | 3,44 | 3,64 | 3,83 | 4,00 | 4,18 | 4,30 | 4,41 | 4,50 | 4,56 | 4,60 | 4,65 | 4,67 | 4,70 | 4,69 | 4,69 | 4,65 | 4,63 | 4,58 | 4,49 |
| 780  | 2,94 | 3,13 | 3,42 | 3,65 | 3,84 | 4,01 | 4,17 | 4,31 | 4,43 | 4,53 | 4,58 | 4,64 | 4,67 | 4,68 | 4,70 | 4,69 | 4,69 | 4,64 | 4,60 |
| 800  | 2,36 | 2,63 | 2,90 | 3,11 | 3,40 | 3,62 | 3,84 | 4,03 | 4,17 | 4,31 | 4,45 | 4,53 | 4,61 | 4,67 | 4,69 | 4,72 | 4,72 | 4,69 | 4,69 |
| 820  | 1,69 | 2,02 | 2,30 | 2,59 | 2,87 | 3,08 | 3,38 | 3,60 | 3,83 | 4,02 | 4,18 | 4,33 | 4,44 | 4,56 | 4,63 | 4,70 | 4,74 | 4,73 | 4,74 |
| 840  | 1,17 | 1,43 | 1,64 | 1,97 | 2,24 | 2,53 | 2,82 | 3,04 | 3,36 | 3,59 | 3,81 | 3,98 | 4,20 | 4,32 | 4,47 | 4,57 | 4,66 | 4,71 | 4,75 |
| 860  | 0,69 | 0,93 | 1,13 | 1,37 | 1,59 | 1,91 | 2,20 | 2,48 | 2,77 | 3,00 | 3,32 | 3,56 | 3,79 | 4,02 | 4,19 | 4,33 | 4,47 | 4,57 | 4,65 |
| 880  | 0,39 | 0,51 | 0,66 | 0,89 | 1,08 | 1,32 | 1,54 | 1,85 | 2,15 | 2,43 | 2,72 | 2,96 | 3,28 | 3,54 | 3,77 | 4,00 | 4,19 | 4,35 | 4,48 |
| 900  | 0,28 | 0,33 | 0,38 | 0,49 | 0,63 | 0,86 | 1,04 | 1,27 | 1,48 | 1,80 | 2,09 | 2,40 | 2,68 | 2,92 | 3,25 | 3,50 | 3,75 | 3,86 | 4,17 |
| 920  | 0,39 | 0,32 | 0,30 | 0,33 | 0,39 | 0,49 | 0,62 | 0,84 | 1,00 | 1,24 | 1,44 | 1,75 | 2,03 | 2,32 | 2,63 | 2,86 | 3,21 | 3,46 | 3,73 |
| 940  | 0,68 | 0,52 | 0,43 | 0,35 | 0,34 | 0,34 | 0,40 | 0,50 | 0,61 | 0,80 | 0,98 | 1,21 | 1,39 | 1,70 | 2,00 | 2,27 | 2,57 | 2,83 | 3,16 |
| 960  | 1,15 | 0,95 | 0,75 | 0,60 | 0,49 | 0,40 | 0,36 | 0,37 | 0,40 | 0,50 | 0,61 | 0,80 | 0,95 | 1,17 | 1,36 | 1,66 | 1,95 | 2,23 | 2,52 |
| 980  | 1,71 | 1,46 | 1,22 | 1,02 | 0,84 | 0,65 | 0,56 | 0,44 | 0,40 | 0,41 | 0,43 | 0,50 | 0,62 | 0,81 | 0,92 | 1,15 | 1,33 | 1,63 | 1,90 |
| 1000 | 2,27 | 2,06 | 1,75 | 1,53 | 1,29 | 1,09 | 0,91 | 0,74 | 0,60 | 0,51 | 0,45 | 0,44 | 0,46 | 0,52 | 0,62 | 0,80 | 0,94 | 1,12 | 1,30 |
|      | 130  | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  |



TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,30 | 1,60 | 1,87 | 2,14 | 2,44 | 2,68 | 3,02 | 3,31 | 3,59 | 3,86 | 4,09 | 4,29 | 4,49 | 4,64 | 4,75 | 4,84 | 4,90 | 4,93 | 4,93 |
| 20   | 0,93 | 1,12 | 1,27 | 1,57 | 1,83 | 2,10 | 2,40 | 2,65 | 2,99 | 3,28 | 3,55 | 3,84 | 4,06 | 4,27 | 4,47 | 4,63 | 4,75 | 4,85 | 4,93 |
| 40   | 0,66 | 0,81 | 0,93 | 1,12 | 1,27 | 1,54 | 1,80 | 2,08 | 2,37 | 2,60 | 2,95 | 3,23 | 3,51 | 3,78 | 4,04 | 4,26 | 4,46 | 4,62 | 4,74 |
| 60   | 0,59 | 0,62 | 0,70 | 0,83 | 0,94 | 1,11 | 1,25 | 1,53 | 1,78 | 2,05 | 2,33 | 2,57 | 2,92 | 3,20 | 3,48 | 3,76 | 4,01 | 4,24 | 4,44 |
| 80   | 0,69 | 0,66 | 0,64 | 0,68 | 0,73 | 0,86 | 0,95 | 1,12 | 1,25 | 1,52 | 1,77 | 2,02 | 2,30 | 2,54 | 2,88 | 3,16 | 3,44 | 3,74 | 3,97 |
| 100  | 0,77 | 0,85 | 0,79 | 0,71 | 0,70 | 0,71 | 0,79 | 0,91 | 0,99 | 1,13 | 1,26 | 1,52 | 1,75 | 2,02 | 2,27 | 2,51 | 2,84 | 3,12 | 3,41 |
| 120  | 1,25 | 1,11 | 1,02 | 0,91 | 0,84 | 0,78 | 0,75 | 0,77 | 0,82 | 0,94 | 1,02 | 1,16 | 1,29 | 1,52 | 1,74 | 1,99 | 2,27 | 2,48 | 2,82 |
| 140  | 1,48 | 1,31 | 1,14 | 1,01 | 0,91 | 0,82 | 0,76 | 0,72 | 0,72 | 0,75 | 0,82 | 0,97 | 1,07 | 1,23 | 1,36 | 1,62 | 1,85 | 2,10 | 2,38 |
| 160  | 1,93 | 1,77 | 1,60 | 1,43 | 1,33 | 1,20 | 1,10 | 1,02 | 0,95 | 0,93 | 0,90 | 0,89 | 0,93 | 1,03 | 1,10 | 1,24 | 1,33 | 1,56 | 1,77 |
| 180  | 2,23 | 2,13 | 1,92 | 1,75 | 1,60 | 1,48 | 1,25 | 1,23 | 1,15 | 1,06 | 1,00 | 0,97 | 0,96 | 0,96 | 0,99 | 1,09 | 1,16 | 1,28 | 1,39 |
| 200  | 2,48 | 2,31 | 2,19 | 2,09 | 1,89 | 1,75 | 1,61 | 1,48 | 1,37 | 1,26 | 1,19 | 1,10 | 1,06 | 1,03 | 1,01 | 1,03 | 1,05 | 1,15 | 1,20 |
| 220  | 2,73 | 2,56 | 2,41 | 2,26 | 2,11 | 2,04 | 1,85 | 1,72 | 1,60 | 1,49 | 1,40 | 1,28 | 1,21 | 1,15 | 1,09 | 1,08 | 1,08 | 1,09 | 1,13 |
| 240  | 2,96 | 2,80 | 2,65 | 2,50 | 2,34 | 2,20 | 2,04 | 1,97 | 1,82 | 1,68 | 1,58 | 1,48 | 1,38 | 1,31 | 1,25 | 1,16 | 1,14 | 1,12 | 1,13 |
| 260  | 3,25 | 3,11 | 2,93 | 2,75 | 2,53 | 2,42 | 2,27 | 2,11 | 1,98 | 1,86 | 1,73 | 1,65 | 1,55 | 1,46 | 1,38 | 1,31 | 1,27 | 1,20 | 1,18 |
| 280  | 3,52 | 3,38 | 3,22 | 3,04 | 2,87 | 2,69 | 2,50 | 2,35 | 2,20 | 2,05 | 1,91 | 1,84 | 1,67 | 1,59 | 1,50 | 1,43 | 1,35 | 1,29 | 1,27 |
| 300  | 3,72 | 3,63 | 3,49 | 3,36 | 3,17 | 2,99 | 2,81 | 2,64 | 2,46 | 2,28 | 2,13 | 1,98 | 1,83 | 1,78 | 1,61 | 1,52 | 1,43 | 1,39 | 1,33 |
| 320  | 3,82 | 3,79 | 3,74 | 3,64 | 3,50 | 3,33 | 3,15 | 2,95 | 2,75 | 2,56 | 2,37 | 2,21 | 2,06 | 1,90 | 1,76 | 1,70 | 1,54 | 1,45 | 1,39 |
| 340  | 3,82 | 3,86 | 3,86 | 3,83 | 3,75 | 3,65 | 3,51 | 3,31 | 3,12 | 2,92 | 2,71 | 2,50 | 2,31 | 2,14 | 1,98 | 1,82 | 1,70 | 1,63 | 1,47 |
| 360  | 3,68 | 3,81 | 3,89 | 3,92 | 3,91 | 3,88 | 3,79 | 3,67 | 3,51 | 3,33 | 3,10 | 2,90 | 2,68 | 2,46 | 2,25 | 2,06 | 1,90 | 1,75 | 1,62 |
| 380  | 3,44 | 3,61 | 3,75 | 3,84 | 3,96 | 4,01 | 3,99 | 3,92 | 3,83 | 3,68 | 3,53 | 3,34 | 3,11 | 2,87 | 2,65 | 2,43 | 2,20 | 2,02 | 1,84 |
| 400  | 3,13 | 3,35 | 3,53 | 3,68 | 3,81 | 3,93 | 4,01 | 4,05 | 4,06 | 3,98 | 3,87 | 3,72 | 3,55 | 3,34 | 3,12 | 2,87 | 2,64 | 2,39 | 2,17 |
| 420  | 2,77 | 2,97 | 3,18 | 3,39 | 3,59 | 3,73 | 3,88 | 4,00 | 4,08 | 4,12 | 4,12 | 4,06 | 3,92 | 3,78 | 3,58 | 3,36 | 3,12 | 2,87 | 2,62 |
| 440  | 2,30 | 2,55 | 2,79 | 3,01 | 3,23 | 3,44 | 3,63 | 3,80 | 3,94 | 4,07 | 4,15 | 4,19 | 4,17 | 4,12 | 4,01 | 3,82 | 3,62 | 3,40 | 3,15 |
| 460  | 1,79 | 2,10 | 2,28 | 2,53 | 2,80 | 3,03 | 3,26 | 3,47 | 3,68 | 3,86 | 4,02 | 4,13 | 4,22 | 4,26 | 4,25 | 4,18 | 4,07 | 3,89 | 3,66 |
| 480  | 1,30 | 1,53 | 1,76 | 2,05 | 2,25 | 2,50 | 2,78 | 3,04 | 3,28 | 3,50 | 3,72 | 3,91 | 4,07 | 4,21 | 4,27 | 4,34 | 4,30 | 4,25 | 4,12 |
| 500  | 0,86 | 1,05 | 1,24 | 1,47 | 1,71 | 2,01 | 2,22 | 2,50 | 2,77 | 3,02 | 3,28 | 3,52 | 3,76 | 3,95 | 4,13 | 4,25 | 4,35 | 4,39 | 4,38 |
| 520  | 0,54 | 0,63 | 0,80 | 0,98 | 1,18 | 1,41 | 1,66 | 1,97 | 2,19 | 2,47 | 2,73 | 3,01 | 3,28 | 3,54 | 3,78 | 3,98 | 4,16 | 4,32 | 4,42 |
| 540  | 0,35 | 0,38 | 0,46 | 0,59 | 0,72 | 0,92 | 1,11 | 1,35 | 1,60 | 1,92 | 2,14 | 2,42 | 2,71 | 2,98 | 3,27 | 3,53 | 3,80 | 4,00 | 4,19 |
| 560  | 0,37 | 0,32 | 0,31 | 0,35 | 0,42 | 0,51 | 0,67 | 0,84 | 1,05 | 1,29 | 1,54 | 1,87 | 2,09 | 2,37 | 2,67 | 2,96 | 3,24 | 3,54 | 3,79 |
| 580  | 0,61 | 0,47 | 0,37 | 0,31 | 0,29 | 0,31 | 0,37 | 0,45 | 0,59 | 0,78 | 0,97 | 1,23 | 1,47 | 1,79 | 2,03 | 2,32 | 2,63 | 2,94 | 3,22 |
| 600  | 1,08 | 0,84 | 0,65 | 0,49 | 0,36 | 0,29 | 0,27 | 0,28 | 0,34 | 0,42 | 0,54 | 0,70 | 0,92 | 1,16 | 1,40 | 1,73 | 1,97 | 2,27 | 2,58 |
| 620  | 1,57 | 1,37 | 1,12 | 0,88 | 0,69 | 0,51 | 0,37 | 0,29 | 0,25 | 0,25 | 0,31 | 0,37 | 0,49 | 0,65 | 0,83 | 1,08 | 1,33 | 1,66 | 1,90 |
| 640  | 2,25 | 1,95 | 1,63 | 1,41 | 1,16 | 0,93 | 0,73 | 0,55 | 0,41 | 0,30 | 0,23 | 0,22 | 0,27 | 0,33 | 0,45 | 0,61 | 0,77 | 1,00 | 1,26 |
| 660  | 2,86 | 2,58 | 2,30 | 2,02 | 1,74 | 1,47 | 1,21 | 0,98 | 0,77 | 0,60 | 0,44 | 0,32 | 0,25 | 0,21 | 0,25 | 0,31 | 0,42 | 0,54 | 0,72 |
| 680  | 3,41 | 3,11 | 2,91 | 2,62 | 2,35 | 2,07 | 1,75 | 1,54 | 1,28 | 1,03 | 0,83 | 0,63 | 0,47 | 0,35 | 0,25 | 0,21 | 0,24 | 0,27 | 0,37 |
| 700  | 3,82 | 3,61 | 3,42 | 3,14 | 2,93 | 2,67 | 2,41 | 2,12 | 1,85 | 1,59 | 1,33 | 1,08 | 0,87 | 0,69 | 0,51 | 0,38 | 0,30 | 0,24 | 0,24 |
| 720  | 4,15 | 3,99 | 3,81 | 3,63 | 3,42 | 3,18 | 2,94 | 2,70 | 2,45 | 2,18 | 1,89 | 1,56 | 1,28 | 1,01 | 0,80 | 0,63 | 0,50 | 0,38 | 0,31 |
| 740  | 4,37 | 4,25 | 4,13 | 3,98 | 3,80 | 3,63 | 3,42 | 3,16 | 2,99 | 2,74 | 2,49 | 2,23 | 1,92 | 1,55 | 1,30 | 1,06 | 0,86 | 0,68 | 0,54 |
| 760  | 4,49 | 4,44 | 4,33 | 4,20 | 4,10 | 3,98 | 3,79 | 3,61 | 3,43 | 3,16 | 2,99 | 2,77 | 2,54 | 2,26 | 1,97 | 1,59 | 1,35 | 1,13 | 0,92 |
| 780  | 4,60 | 4,54 | 4,49 | 4,51 | 4,32 | 4,21 | 4,09 | 3,94 | 3,79 | 3,60 | 3,42 | 3,17 | 3,00 | 2,78 | 2,55 | 2,32 | 2,02 | 1,64 | 1,41 |
| 800  | 4,69 | 4,64 | 4,58 | 4,54 | 4,44 | 4,38 | 4,28 | 4,18 | 4,06 | 3,93 | 3,77 | 3,60 | 3,41 | 3,18 | 3,01 | 2,79 | 2,58 | 2,34 | 2,07 |
| 820  | 4,74 | 4,70 | 4,69 | 4,64 | 4,59 | 4,51 | 4,43 | 4,25 | 4,26 | 4,15 | 4,03 | 3,92 | 3,75 | 3,58 | 3,41 | 3,16 | 3,03 | 2,79 | 2,59 |
| 840  | 4,75 | 4,75 | 4,76 | 4,72 | 4,69 | 4,64 | 4,59 | 4,50 | 4,41 | 4,33 | 4,22 | 4,11 | 4,00 | 3,87 | 3,72 | 3,57 | 3,40 | 3,17 | 3,01 |
| 860  | 4,65 | 4,75 | 4,78 | 4,79 | 4,77 | 4,73 | 4,71 | 4,64 | 4,58 | 4,50 | 4,39 | 4,31 | 4,20 | 4,09 | 3,97 | 3,84 | 3,69 | 3,52 | 3,38 |
| 880  | 4,48 | 4,60 | 4,67 | 4,74 | 4,81 | 4,81 | 4,81 | 4,72 | 4,72 | 4,64 | 4,58 | 4,40 | 4,39 | 4,29 | 4,18 | 4,06 | 3,92 | 3,82 | 3,65 |
| 900  | 4,17 | 4,36 | 4,50 | 4,61 | 4,69 | 4,76 | 4,81 | 4,83 | 4,84 | 4,79 | 4,73 | 4,64 | 4,58 | 4,48 | 4,38 | 4,28 | 4,16 | 4,03 | 3,91 |
| 920  | 3,73 | 3,96 | 4,15 | 4,34 | 4,50 | 4,62 | 4,71 | 4,78 | 4,82 | 4,84 | 4,86 | 4,80 | 4,76 | 4,68 | 4,58 | 4,48 | 4,37 | 4,26 | 4,14 |
| 940  | 3,16 | 3,44 | 3,69 | 3,95 | 4,15 | 4,33 | 4,50 | 4,62 | 4,71 | 4,80 | 4,85 | 4,87 | 4,87 | 4,84 | 4,79 | 4,68 | 4,59 | 4,49 | 4,37 |
| 960  | 2,52 | 2,77 | 3,11 | 3,39 | 3,67 | 3,92 | 4,14 | 4,33 | 4,49 | 4,64 | 4,73 | 4,82 | 4,87 | 4,89 | 4,89 | 4,84 | 4,81 | 4,70 | 4,61 |
| 980  | 1,90 | 2,19 | 2,48 | 2,72 | 3,07 | 3,35 | 3,63 | 3,88 | 4,12 | 4,31 | 4,49 | 4,63 | 4,74 | 4,83 | 4,88 | 4,89 | 4,91 | 4,87 | 4,82 |
| 1000 | 1,30 | 1,60 | 1,87 | 2,14 | 2,44 | 2,68 | 3,02 | 3,31 | 3,59 | 3,86 | 4,09 | 4,29 | 4,49 | 4,64 | 4,75 | 4,84 | 4,90 | 4,93 | 4,93 |
|      | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  |



## SOLAR TABLES.

TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 490  | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 4.93 | 4.88 | 4.84 | 4.75 | 4.64 | 4.52 | 4.37 | 4.23 | 4.09 | 3.93 | 3.78 | 3.61 | 3.44 | 3.27 | 3.11 | 2.91 | 2.79 | 2.65 | 2.48 |
| 20   | 4.93 | 4.94 | 4.95 | 4.92 | 4.87 | 4.76 | 4.66 | 4.55 | 4.37 | 4.24 | 4.08 | 3.91 | 3.75 | 3.58 | 3.41 | 3.25 | 3.08 | 2.85 | 2.75 |
| 40   | 4.74 | 4.86 | 4.93 | 4.96 | 4.98 | 4.93 | 4.88 | 4.79 | 4.68 | 4.55 | 4.40 | 4.25 | 4.08 | 3.90 | 3.73 | 3.57 | 3.37 | 3.20 | 3.03 |
| 60   | 4.44 | 4.61 | 4.75 | 4.86 | 4.93 | 4.97 | 4.99 | 4.95 | 4.92 | 4.82 | 4.71 | 4.58 | 4.41 | 4.25 | 4.07 | 3.91 | 3.72 | 3.55 | 3.36 |
| 80   | 3.97 | 4.21 | 4.43 | 4.60 | 4.75 | 4.86 | 4.95 | 4.99 | 5.01 | 4.97 | 4.94 | 4.84 | 4.64 | 4.59 | 4.43 | 4.26 | 3.98 | 3.88 | 3.71 |
| 100  | 3.41 | 3.69 | 3.95 | 4.17 | 4.40 | 4.59 | 4.73 | 4.87 | 4.95 | 4.99 | 5.03 | 4.98 | 4.94 | 4.86 | 4.76 | 4.62 | 4.45 | 4.28 | 4.07 |
| 120  | 2.82 | 3.10 | 3.39 | 3.66 | 3.91 | 4.16 | 4.31 | 4.57 | 4.73 | 4.87 | 4.96 | 5.01 | 5.04 | 5.01 | 4.97 | 4.88 | 4.77 | 4.63 | 4.47 |
| 140  | 2.38 | 2.61 | 2.79 | 3.07 | 3.36 | 3.64 | 3.89 | 4.14 | 4.35 | 4.55 | 4.71 | 4.85 | 4.97 | 5.02 | 5.04 | 5.04 | 5.00 | 4.89 | 4.70 |
| 160  | 1.77 | 1.99 | 2.23 | 2.46 | 2.78 | 3.05 | 3.32 | 3.61 | 3.86 | 4.09 | 4.33 | 4.46 | 4.69 | 4.84 | 4.97 | 5.02 | 5.07 | 5.04 | 5.02 |
| 180  | 1.39 | 1.59 | 1.78 | 1.99 | 2.24 | 2.44 | 2.77 | 3.03 | 3.30 | 3.58 | 3.84 | 4.08 | 4.30 | 4.51 | 4.67 | 4.83 | 4.94 | 5.04 | 5.08 |
| 200  | 1.20 | 1.32 | 1.41 | 1.62 | 1.80 | 2.02 | 2.24 | 2.44 | 2.74 | 3.02 | 3.30 | 3.54 | 3.81 | 4.05 | 4.27 | 4.49 | 4.65 | 4.82 | 4.94 |
| 220  | 1.13 | 1.20 | 1.25 | 1.37 | 1.46 | 1.66 | 1.86 | 2.03 | 2.25 | 2.44 | 2.74 | 3.00 | 3.26 | 3.56 | 3.79 | 4.02 | 4.26 | 4.46 | 4.63 |
| 240  | 1.13 | 1.18 | 1.22 | 1.29 | 1.35 | 1.41 | 1.49 | 1.70 | 1.88 | 2.08 | 2.28 | 2.45 | 2.74 | 2.98 | 3.25 | 3.53 | 3.77 | 4.00 | 4.24 |
| 260  | 1.18 | 1.16 | 1.17 | 1.20 | 1.26 | 1.33 | 1.38 | 1.48 | 1.59 | 1.74 | 1.92 | 2.10 | 2.31 | 2.47 | 2.75 | 2.99 | 3.23 | 3.49 | 3.75 |
| 280  | 1.27 | 1.23 | 1.21 | 1.21 | 1.23 | 1.25 | 1.30 | 1.40 | 1.45 | 1.55 | 1.61 | 1.79 | 1.95 | 2.14 | 2.34 | 2.50 | 2.77 | 3.00 | 3.23 |
| 300  | 1.33 | 1.28 | 1.27 | 1.25 | 1.24 | 1.24 | 1.26 | 1.31 | 1.37 | 1.44 | 1.51 | 1.60 | 1.71 | 1.84 | 2.01 | 2.18 | 2.37 | 2.52 | 2.79 |
| 320  | 1.39 | 1.32 | 1.31 | 1.26 | 1.26 | 1.24 | 1.25 | 1.27 | 1.29 | 1.34 | 1.40 | 1.52 | 1.57 | 1.67 | 1.71 | 1.91 | 2.05 | 2.21 | 2.41 |
| 340  | 1.47 | 1.40 | 1.31 | 1.28 | 1.25 | 1.25 | 1.25 | 1.24 | 1.26 | 1.28 | 1.32 | 1.37 | 1.45 | 1.55 | 1.62 | 1.73 | 1.80 | 1.94 | 2.11 |
| 360  | 1.62 | 1.56 | 1.41 | 1.34 | 1.25 | 1.23 | 1.20 | 1.18 | 1.20 | 1.22 | 1.25 | 1.30 | 1.35 | 1.41 | 1.49 | 1.58 | 1.68 | 1.78 | 1.85 |
| 380  | 1.84 | 1.68 | 1.54 | 1.47 | 1.33 | 1.26 | 1.20 | 1.16 | 1.15 | 1.14 | 1.18 | 1.21 | 1.24 | 1.30 | 1.36 | 1.43 | 1.51 | 1.64 | 1.72 |
| 400  | 2.17 | 1.96 | 1.78 | 1.61 | 1.48 | 1.30 | 1.25 | 1.18 | 1.13 | 1.11 | 1.10 | 1.10 | 1.13 | 1.16 | 1.23 | 1.29 | 1.37 | 1.45 | 1.53 |
| 420  | 2.62 | 2.37 | 2.13 | 1.93 | 1.73 | 1.56 | 1.40 | 1.33 | 1.18 | 1.11 | 1.05 | 1.04 | 1.03 | 1.05 | 1.10 | 1.13 | 1.20 | 1.29 | 1.36 |
| 440  | 3.15 | 2.88 | 2.62 | 2.36 | 2.11 | 1.89 | 1.69 | 1.50 | 1.34 | 1.28 | 1.12 | 1.04 | 0.98 | 0.96 | 0.97 | 1.04 | 1.09 | 1.17 | 1.17 |
| 460  | 3.66 | 3.42 | 3.17 | 2.90 | 2.63 | 2.35 | 2.09 | 1.85 | 1.65 | 1.46 | 1.30 | 1.22 | 1.05 | 0.97 | 0.92 | 0.89 | 0.89 | 0.91 | 0.98 |
| 480  | 4.12 | 3.96 | 3.76 | 3.49 | 3.22 | 2.94 | 2.65 | 2.36 | 2.09 | 1.84 | 1.61 | 1.31 | 1.25 | 1.10 | 1.00 | 0.91 | 0.85 | 0.83 | 0.82 |
| 500  | 4.38 | 4.31 | 4.19 | 4.03 | 3.80 | 3.54 | 3.24 | 2.95 | 2.67 | 2.37 | 2.09 | 1.83 | 1.60 | 1.39 | 1.20 | 1.12 | 0.94 | 0.86 | 0.78 |
| 520  | 4.42 | 4.46 | 4.44 | 4.38 | 4.26 | 4.07 | 3.85 | 3.61 | 3.30 | 2.99 | 2.70 | 2.39 | 2.10 | 1.83 | 1.60 | 1.37 | 1.17 | 1.06 | 0.89 |
| 540  | 4.19 | 4.35 | 4.47 | 4.51 | 4.52 | 4.45 | 4.32 | 4.15 | 3.93 | 3.65 | 3.35 | 3.00 | 2.73 | 2.42 | 2.12 | 1.85 | 1.58 | 1.35 | 1.16 |
| 560  | 3.79 | 4.03 | 4.23 | 4.39 | 4.50 | 4.57 | 4.53 | 4.52 | 4.39 | 4.22 | 3.99 | 3.73 | 3.43 | 3.09 | 2.79 | 2.46 | 2.16 | 1.87 | 1.61 |
| 580  | 3.22 | 3.51 | 3.79 | 4.02 | 4.26 | 4.42 | 4.54 | 4.62 | 4.63 | 4.57 | 4.48 | 4.29 | 4.07 | 3.80 | 3.48 | 3.16 | 2.83 | 2.51 | 2.18 |
| 600  | 2.58 | 2.88 | 3.18 | 3.47 | 3.78 | 4.03 | 4.25 | 4.45 | 4.58 | 4.65 | 4.68 | 4.63 | 4.51 | 4.35 | 4.13 | 3.86 | 3.56 | 3.24 | 2.89 |
| 620  | 1.90 | 2.20 | 2.53 | 2.83 | 3.14 | 3.46 | 3.75 | 4.01 | 4.25 | 4.46 | 4.61 | 4.69 | 4.72 | 4.68 | 4.58 | 4.42 | 4.20 | 3.93 | 3.64 |
| 640  | 1.26 | 1.53 | 1.83 | 2.14 | 2.46 | 2.78 | 3.09 | 3.42 | 3.71 | 4.00 | 4.25 | 4.45 | 4.62 | 4.73 | 4.75 | 4.74 | 4.64 | 4.47 | 4.26 |
| 660  | 0.72 | 0.94 | 1.18 | 1.53 | 1.75 | 2.07 | 2.39 | 2.71 | 3.05 | 3.36 | 3.68 | 3.96 | 4.23 | 4.44 | 4.63 | 4.73 | 4.76 | 4.73 | 4.62 |
| 680  | 0.37 | 0.50 | 0.67 | 0.88 | 1.12 | 1.44 | 1.70 | 1.99 | 2.33 | 2.65 | 2.98 | 3.31 | 3.63 | 3.92 | 4.21 | 4.44 | 4.61 | 4.75 | 4.81 |
| 700  | 0.24 | 0.25 | 0.35 | 0.47 | 0.61 | 0.83 | 1.05 | 1.37 | 1.60 | 1.93 | 2.26 | 2.57 | 2.91 | 3.26 | 3.58 | 3.89 | 4.17 | 4.41 | 4.60 |
| 720  | 0.31 | 0.26 | 0.23 | 0.24 | 0.32 | 0.44 | 0.59 | 0.78 | 0.99 | 1.24 | 1.53 | 1.85 | 2.18 | 2.52 | 2.86 | 3.18 | 3.52 | 3.83 | 4.12 |
| 740  | 0.54 | 0.43 | 0.36 | 0.28 | 0.24 | 0.24 | 0.31 | 0.41 | 0.56 | 0.73 | 0.95 | 1.24 | 1.47 | 1.76 | 2.09 | 2.45 | 2.77 | 3.12 | 3.48 |
| 760  | 0.92 | 0.73 | 0.66 | 0.52 | 0.40 | 0.32 | 0.27 | 0.26 | 0.30 | 0.39 | 0.51 | 0.70 | 0.90 | 1.20 | 1.41 | 1.70 | 2.02 | 2.34 | 2.71 |
| 780  | 1.41 | 1.19 | 1.10 | 0.91 | 0.73 | 0.56 | 0.44 | 0.36 | 0.32 | 0.28 | 0.32 | 0.39 | 0.50 | 0.67 | 0.86 | 1.14 | 1.35 | 1.65 | 1.95 |
| 800  | 2.07 | 1.68 | 1.62 | 1.39 | 1.19 | 0.97 | 0.78 | 0.63 | 0.50 | 0.39 | 0.36 | 0.31 | 0.32 | 0.38 | 0.49 | 0.65 | 0.82 | 1.10 | 1.30 |
| 820  | 2.59 | 2.35 | 2.02 | 1.81 | 1.52 | 1.27 | 1.03 | 0.80 | 0.60 | 0.45 | 0.32 | 0.21 | 0.18 | 0.16 | 0.22 | 0.32 | 0.45 | 0.63 | 0.85 |
| 840  | 3.01 | 2.81 | 2.59 | 2.38 | 2.11 | 1.95 | 1.74 | 1.49 | 1.28 | 1.09 | 0.90 | 0.74 | 0.61 | 0.51 | 0.44 | 0.40 | 0.41 | 0.42 | 0.49 |
| 860  | 3.38 | 3.35 | 3.02 | 2.82 | 2.59 | 2.39 | 2.13 | 1.97 | 1.78 | 1.55 | 1.33 | 1.15 | 0.97 | 0.80 | 0.67 | 0.56 | 0.50 | 0.43 | 0.44 |
| 880  | 3.65 | 3.50 | 3.35 | 3.12 | 3.00 | 2.81 | 2.61 | 2.39 | 2.16 | 2.00 | 1.79 | 1.58 | 1.39 | 1.19 | 1.03 | 0.87 | 0.72 | 0.61 | 0.55 |
| 900  | 3.91 | 3.77 | 3.63 | 3.48 | 3.31 | 3.09 | 2.97 | 2.78 | 2.61 | 2.41 | 2.17 | 2.02 | 1.81 | 1.62 | 1.44 | 1.26 | 1.08 | 0.92 | 0.78 |
| 920  | 4.14 | 4.01 | 3.87 | 3.74 | 3.58 | 3.44 | 3.28 | 3.06 | 2.94 | 2.77 | 2.59 | 2.42 | 2.16 | 2.04 | 1.85 | 1.65 | 1.47 | 1.32 | 1.13 |
| 940  | 4.37 | 4.25 | 4.12 | 3.98 | 3.95 | 3.72 | 3.55 | 3.30 | 3.25 | 3.00 | 2.91 | 2.74 | 2.58 | 2.38 | 2.16 | 2.02 | 1.86 | 1.67 | 1.52 |
| 960  | 4.61 | 4.48 | 4.36 | 4.25 | 4.11 | 3.96 | 3.82 | 3.77 | 3.51 | 3.35 | 3.20 | 3.00 | 2.89 | 2.71 | 2.55 | 2.47 | 2.15 | 2.04 | 1.86 |
| 980  | 4.82 | 4.75 | 4.62 | 4.50 | 4.36 | 4.23 | 4.10 | 3.95 | 3.79 | 3.65 | 3.47 | 3.31 | 3.16 | 2.96 | 2.85 | 2.67 | 2.51 | 2.35 | 2.14 |
| 1000 | 4.93 | 4.88 | 4.84 | 4.75 | 4.64 | 4.52 | 4.37 | 4.23 | 4.09 | 3.93 | 3.78 | 3.61 | 3.44 | 3.27 | 3.11 | 2.91 | 2.79 | 2.65 | 2.48 |
|      | 490  | 500  | 510  | 520  | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  |



TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 670  | 680  | 690  | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 2,48 | 2,32 | 2,12 | 2,02 | 1,85 | 1,70 | 1,56 | 1,42 | 1,29 | 1,17 | 1,07 | 0,99 | 0,94 | 0,85 | 0,82 | 0,82 | 0,84 | 0,90 | 0,98 |
| 20   | 2,75 | 2,58 | 2,45 | 2,28 | 2,10 | 1,99 | 1,84 | 1,70 | 1,57 | 1,43 | 1,32 | 1,22 | 1,11 | 1,02 | 0,99 | 0,92 | 0,89 | 0,90 | 0,90 |
| 40   | 3,03 | 2,81 | 2,69 | 2,54 | 2,39 | 2,24 | 2,06 | 1,97 | 1,83 | 1,70 | 1,56 | 1,46 | 1,34 | 1,23 | 1,15 | 1,07 | 1,02 | 0,98 | 0,98 |
| 60   | 3,36 | 3,16 | 2,99 | 2,77 | 2,65 | 2,50 | 2,34 | 2,19 | 2,01 | 1,93 | 1,81 | 1,66 | 1,56 | 1,44 | 1,35 | 1,26 | 1,19 | 1,11 | 1,07 |
| 80   | 3,71 | 3,53 | 3,33 | 3,13 | 2,95 | 2,72 | 2,60 | 2,43 | 2,29 | 2,15 | 1,96 | 1,90 | 1,77 | 1,64 | 1,54 | 1,45 | 1,35 | 1,29 | 1,20 |
| 100  | 4,07 | 3,90 | 3,70 | 3,50 | 3,29 | 3,11 | 2,92 | 2,69 | 2,56 | 2,39 | 2,23 | 2,08 | 1,92 | 1,83 | 1,74 | 1,62 | 1,50 | 1,43 | 1,35 |
| 120  | 4,47 | 4,31 | 4,12 | 3,89 | 3,72 | 3,49 | 3,28 | 3,07 | 2,88 | 2,65 | 2,51 | 2,34 | 2,18 | 2,04 | 1,85 | 1,79 | 1,69 | 1,58 | 1,49 |
| 140  | 4,70 | 4,66 | 4,49 | 4,32 | 4,13 | 3,90 | 3,68 | 3,49 | 3,26 | 3,05 | 2,86 | 2,60 | 2,47 | 2,30 | 2,14 | 1,98 | 1,80 | 1,74 | 1,62 |
| 160  | 5,02 | 4,92 | 4,81 | 4,67 | 4,51 | 4,34 | 4,14 | 3,92 | 3,69 | 3,48 | 3,26 | 3,03 | 2,83 | 2,57 | 2,42 | 2,25 | 2,07 | 1,93 | 1,75 |
| 180  | 5,08 | 5,05 | 5,03 | 4,94 | 4,83 | 4,71 | 4,54 | 4,36 | 4,16 | 3,94 | 3,71 | 3,47 | 3,24 | 3,02 | 2,80 | 2,55 | 2,40 | 2,20 | 2,04 |
| 200  | 4,94 | 5,02 | 5,09 | 5,07 | 5,04 | 4,97 | 4,88 | 4,73 | 4,55 | 4,38 | 4,18 | 3,96 | 3,73 | 3,49 | 3,22 | 2,98 | 2,79 | 2,52 | 2,36 |
| 220  | 4,63 | 4,79 | 4,93 | 5,00 | 5,08 | 5,08 | 5,05 | 4,99 | 4,89 | 4,71 | 4,58 | 4,40 | 4,20 | 3,98 | 3,75 | 3,50 | 3,23 | 2,99 | 2,75 |
| 240  | 4,24 | 4,43 | 4,61 | 4,78 | 4,91 | 5,00 | 5,07 | 5,08 | 5,09 | 5,00 | 4,91 | 4,77 | 4,60 | 4,43 | 4,22 | 4,00 | 3,77 | 3,53 | 3,26 |
| 260  | 3,75 | 3,99 | 4,21 | 4,43 | 4,60 | 4,77 | 4,88 | 4,99 | 5,06 | 5,08 | 5,09 | 5,01 | 4,92 | 4,80 | 4,63 | 4,46 | 4,26 | 4,02 | 3,79 |
| 280  | 3,23 | 3,49 | 3,72 | 3,96 | 4,20 | 4,39 | 4,57 | 4,74 | 4,88 | 4,96 | 5,06 | 5,08 | 5,08 | 5,02 | 4,94 | 4,82 | 4,66 | 4,48 | 4,27 |
| 300  | 2,79 | 3,00 | 3,24 | 3,48 | 3,71 | 3,94 | 4,17 | 4,36 | 4,45 | 4,72 | 4,86 | 4,97 | 5,05 | 5,06 | 5,08 | 5,03 | 4,95 | 4,84 | 4,68 |
| 320  | 2,41 | 2,57 | 2,80 | 3,03 | 3,24 | 3,48 | 3,70 | 3,93 | 4,14 | 4,34 | 4,53 | 4,69 | 4,84 | 4,86 | 5,03 | 5,06 | 5,09 | 4,93 | 4,97 |
| 340  | 2,11 | 2,27 | 2,45 | 2,59 | 2,85 | 3,04 | 3,26 | 3,49 | 3,69 | 3,91 | 4,12 | 4,33 | 4,51 | 4,69 | 4,82 | 4,92 | 5,01 | 5,04 | 5,07 |
| 360  | 1,85 | 2,02 | 2,16 | 2,31 | 2,48 | 2,62 | 2,88 | 3,07 | 3,28 | 3,51 | 3,69 | 3,89 | 4,16 | 4,30 | 4,48 | 4,66 | 4,81 | 4,89 | 4,99 |
| 380  | 1,72 | 1,83 | 1,92 | 2,08 | 2,21 | 2,37 | 2,55 | 2,69 | 2,90 | 3,10 | 3,29 | 3,51 | 3,71 | 3,90 | 4,08 | 4,29 | 4,46 | 4,62 | 4,78 |
| 400  | 1,53 | 1,69 | 1,76 | 1,88 | 1,96 | 2,14 | 2,28 | 2,32 | 2,58 | 2,71 | 2,95 | 3,13 | 3,32 | 3,51 | 3,71 | 3,91 | 4,09 | 4,29 | 4,42 |
| 420  | 1,30 | 1,46 | 1,55 | 1,67 | 1,80 | 1,93 | 2,06 | 2,18 | 2,29 | 2,47 | 2,63 | 2,75 | 2,99 | 3,16 | 3,35 | 3,53 | 3,72 | 3,91 | 4,10 |
| 440  | 1,07 | 1,25 | 1,35 | 1,46 | 1,58 | 1,72 | 1,83 | 1,96 | 2,04 | 2,23 | 2,39 | 2,53 | 2,68 | 2,80 | 3,01 | 3,19 | 3,38 | 3,57 | 3,74 |
| 460  | 0,98 | 1,04 | 1,13 | 1,23 | 1,34 | 1,47 | 1,57 | 1,75 | 1,84 | 1,99 | 2,09 | 2,27 | 2,43 | 2,59 | 2,74 | 2,84 | 3,06 | 3,22 | 3,41 |
| 480  | 0,82 | 0,86 | 0,92 | 0,98 | 1,07 | 1,18 | 1,31 | 1,43 | 1,59 | 1,77 | 1,87 | 2,02 | 2,12 | 2,32 | 2,48 | 2,63 | 2,79 | 2,89 | 3,09 |
| 500  | 0,78 | 0,76 | 0,77 | 0,79 | 0,83 | 0,91 | 1,03 | 1,14 | 1,27 | 1,41 | 1,56 | 1,76 | 1,89 | 2,04 | 2,14 | 2,35 | 2,51 | 2,67 | 2,83 |
| 520  | 0,89 | 0,80 | 0,73 | 0,72 | 0,71 | 0,72 | 0,78 | 0,87 | 0,96 | 1,09 | 1,23 | 1,38 | 1,53 | 1,73 | 1,90 | 2,05 | 2,18 | 2,39 | 2,55 |
| 540  | 1,06 | 1,04 | 0,84 | 0,75 | 0,67 | 0,63 | 0,64 | 0,66 | 0,73 | 0,80 | 0,90 | 1,05 | 1,19 | 1,34 | 1,52 | 1,72 | 1,85 | 2,07 | 2,19 |
| 560  | 1,61 | 1,35 | 1,14 | 1,01 | 0,80 | 0,71 | 0,63 | 0,59 | 0,57 | 0,59 | 0,67 | 0,73 | 0,85 | 0,97 | 1,13 | 1,30 | 1,48 | 1,69 | 1,85 |
| 580  | 2,18 | 1,89 | 1,63 | 1,39 | 1,19 | 1,00 | 0,79 | 0,66 | 0,58 | 0,54 | 0,52 | 0,53 | 0,60 | 0,67 | 0,78 | 0,92 | 1,08 | 1,26 | 1,44 |
| 600  | 2,89 | 2,57 | 2,24 | 1,92 | 1,64 | 1,39 | 1,19 | 1,00 | 0,80 | 0,64 | 0,52 | 0,49 | 0,48 | 0,47 | 0,55 | 0,61 | 0,71 | 0,87 | 1,05 |
| 620  | 3,64 | 3,31 | 2,98 | 2,61 | 2,29 | 1,98 | 1,67 | 1,40 | 1,19 | 1,00 | 0,81 | 0,63 | 0,51 | 0,45 | 0,41 | 0,43 | 0,49 | 0,55 | 0,66 |
| 640  | 4,26 | 4,01 | 3,70 | 3,37 | 3,05 | 2,69 | 2,34 | 2,02 | 1,73 | 1,43 | 1,19 | 1,01 | 0,84 | 0,62 | 0,49 | 0,41 | 0,39 | 0,38 | 0,43 |
| 660  | 4,62 | 4,47 | 4,26 | 4,00 | 3,71 | 3,38 | 3,04 | 2,68 | 2,35 | 2,08 | 1,78 | 1,48 | 1,21 | 1,03 | 0,77 | 0,62 | 0,47 | 0,41 | 0,35 |
| 680  | 4,81 | 4,80 | 4,73 | 4,58 | 4,38 | 4,14 | 3,84 | 3,53 | 3,19 | 2,74 | 2,48 | 2,14 | 1,83 | 1,53 | 1,26 | 1,07 | 0,80 | 0,62 | 0,48 |
| 700  | 4,60 | 4,74 | 4,82 | 4,82 | 4,76 | 4,64 | 4,45 | 4,20 | 3,92 | 3,60 | 3,28 | 2,90 | 2,56 | 2,21 | 1,88 | 1,56 | 1,30 | 1,11 | 0,82 |
| 720  | 4,12 | 4,37 | 4,59 | 4,72 | 4,82 | 4,84 | 4,78 | 4,68 | 4,49 | 4,25 | 3,97 | 3,66 | 3,43 | 3,00 | 2,64 | 2,29 | 1,95 | 1,64 | 1,34 |
| 740  | 3,48 | 3,77 | 4,08 | 4,34 | 4,54 | 4,71 | 4,81 | 4,85 | 4,81 | 4,69 | 4,54 | 4,31 | 4,03 | 3,73 | 3,42 | 3,07 | 2,72 | 2,37 | 2,04 |
| 760  | 2,71 | 3,05 | 3,40 | 3,72 | 4,03 | 4,29 | 4,51 | 4,69 | 4,80 | 4,84 | 4,82 | 4,72 | 4,56 | 4,36 | 4,09 | 3,79 | 3,48 | 3,14 | 2,79 |
| 780  | 1,95 | 2,27 | 2,61 | 2,98 | 3,32 | 3,66 | 3,97 | 4,24 | 4,48 | 4,64 | 4,77 | 4,83 | 4,82 | 4,73 | 4,58 | 4,38 | 4,15 | 3,85 | 3,54 |
| 800  | 1,30 | 1,58 | 1,89 | 2,21 | 2,54 | 2,89 | 3,26 | 3,57 | 3,91 | 4,18 | 4,42 | 4,63 | 4,75 | 4,81 | 4,81 | 4,74 | 4,60 | 4,42 | 4,17 |
| 820  | 0,85 | 1,13 | 1,36 | 1,68 | 2,02 | 2,61 | 2,96 | 3,32 | 3,64 | 3,50 | 3,83 | 4,13 | 4,37 | 4,58 | 4,71 | 4,79 | 4,80 | 4,73 | 4,62 |
| 840  | 0,49 | 0,62 | 0,79 | 1,04 | 1,22 | 1,48 | 1,77 | 2,08 | 2,40 | 2,74 | 3,09 | 3,43 | 3,77 | 4,05 | 4,31 | 4,51 | 4,65 | 4,75 | 4,77 |
| 860  | 0,44 | 0,47 | 0,52 | 0,63 | 0,77 | 1,02 | 1,19 | 1,43 | 1,72 | 2,03 | 2,33 | 2,66 | 3,02 | 3,35 | 3,67 | 4,00 | 4,26 | 4,46 | 4,61 |
| 880  | 0,55 | 0,49 | 0,48 | 0,50 | 0,55 | 0,65 | 0,78 | 1,00 | 1,17 | 1,41 | 1,67 | 1,97 | 2,28 | 2,62 | 2,94 | 3,28 | 3,60 | 3,90 | 4,19 |
| 900  | 0,78 | 0,68 | 0,61 | 0,54 | 0,53 | 0,55 | 0,59 | 0,68 | 0,80 | 1,01 | 1,16 | 1,38 | 1,64 | 1,91 | 2,23 | 2,56 | 2,88 | 3,22 | 3,52 |
| 920  | 1,13 | 0,99 | 0,86 | 0,74 | 0,67 | 0,60 | 0,59 | 0,59 | 0,62 | 0,71 | 0,81 | 1,01 | 1,15 | 1,36 | 1,63 | 1,88 | 2,18 | 2,50 | 2,82 |
| 940  | 1,52 | 1,34 | 1,19 | 1,05 | 0,91 | 0,79 | 0,73 | 0,66 | 0,63 | 0,64 | 0,68 | 0,75 | 0,84 | 1,05 | 1,15 | 1,36 | 1,60 | 1,87 | 2,14 |
| 960  | 1,86 | 1,69 | 1,53 | 1,38 | 1,23 | 1,10 | 1,98 | 0,86 | 0,79 | 0,72 | 0,70 | 0,70 | 0,73 | 0,80 | 0,89 | 1,05 | 1,17 | 1,36 | 1,60 |
| 980  | 2,14 | 2,03 | 1,87 | 1,69 | 1,54 | 1,41 | 1,28 | 1,14 | 1,03 | 0,95 | 0,85 | 0,78 | 0,77 | 0,76 | 0,78 | 0,85 | 0,93 | 1,10 | 1,29 |
| 1000 | 2,48 | 2,32 | 2,12 | 2,02 | 1,85 | 1,70 | 1,56 | 1,42 | 1,29 | 1,17 | 1,07 | 0,99 | 0,94 | 0,85 | 0,82 | 0,82 | 0,84 | 0,90 | 0,98 |
|      | 670  | 680  | 690  | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  |



TABLE XIX.

Perturbations of the Radius Vector produced by *Venus*.

ARGUMENTS. B and C.

C

| B    | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 0,98 | 1,05 | 1,22 | 1,40 | 1,61 | 1,83 | 2,09 | 2,36 | 2,55 | 2,90 | 3,23 | 3,51 | 3,76 | 3,98 | 4,15 | 4,27 |
| 20   | 0,90 | 0,96 | 1,04 | 1,21 | 1,29 | 1,43 | 1,63 | 1,85 | 2,08 | 2,35 | 2,63 | 2,91 | 3,19 | 3,45 | 3,70 | 3,92 |
| 40   | 0,98 | 0,95 | 0,98 | 1,04 | 1,11 | 1,25 | 1,33 | 1,48 | 1,65 | 1,85 | 2,09 | 2,35 | 2,62 | 2,88 | 3,15 | 3,42 |
| 60   | 1,07 | 1,02 | 0,91 | 1,02 | 1,08 | 1,10 | 1,17 | 1,31 | 1,39 | 1,54 | 1,70 | 1,89 | 2,11 | 2,35 | 2,61 | 2,86 |
| 80   | 1,20 | 1,15 | 1,12 | 1,07 | 1,07 | 1,08 | 1,11 | 1,16 | 1,24 | 1,38 | 1,46 | 1,60 | 1,76 | 1,93 | 2,13 | 2,36 |
| 100  | 1,35 | 1,28 | 1,24 | 1,18 | 1,16 | 1,12 | 1,12 | 1,14 | 1,18 | 1,24 | 1,30 | 1,43 | 1,53 | 1,66 | 1,83 | 2,00 |
| 120  | 1,49 | 1,40 | 1,33 | 1,27 | 1,24 | 1,20 | 1,19 | 1,16 | 1,18 | 1,20 | 1,23 | 1,30 | 1,38 | 1,49 | 1,58 | 1,72 |
| 140  | 1,62 | 1,52 | 1,47 | 1,37 | 1,31 | 1,27 | 1,22 | 1,21 | 1,23 | 1,21 | 1,23 | 1,25 | 1,29 | 1,36 | 1,44 | 1,58 |
| 160  | 1,75 | 1,68 | 1,57 | 1,48 | 1,40 | 1,35 | 1,29 | 1,26 | 1,22 | 1,22 | 1,23 | 1,23 | 1,27 | 1,30 | 1,36 | 1,44 |
| 180  | 2,04 | 1,88 | 1,68 | 1,63 | 1,52 | 1,42 | 1,36 | 1,30 | 1,25 | 1,22 | 1,21 | 1,20 | 1,25 | 1,25 | 1,31 | 1,34 |
| 200  | 2,36 | 2,16 | 1,99 | 1,82 | 1,63 | 1,56 | 1,46 | 1,37 | 1,31 | 1,25 | 1,22 | 1,20 | 1,19 | 1,20 | 1,24 | 1,27 |
| 220  | 2,75 | 2,48 | 2,33 | 2,14 | 1,94 | 1,78 | 1,59 | 1,51 | 1,39 | 1,31 | 1,23 | 1,20 | 1,18 | 1,16 | 1,17 | 1,19 |
| 240  | 3,26 | 2,99 | 2,74 | 2,45 | 2,31 | 2,08 | 1,91 | 1,73 | 1,53 | 1,46 | 1,34 | 1,25 | 1,18 | 1,15 | 1,12 | 1,13 |
| 260  | 3,79 | 3,54 | 3,27 | 3,00 | 2,74 | 2,44 | 2,25 | 2,06 | 1,87 | 1,68 | 1,49 | 1,41 | 1,29 | 1,18 | 1,13 | 1,09 |
| 280  | 4,27 | 4,04 | 3,80 | 3,57 | 3,29 | 3,02 | 2,75 | 2,44 | 2,24 | 2,02 | 1,83 | 1,64 | 1,43 | 1,34 | 1,23 | 1,14 |
| 300  | 4,68 | 4,50 | 4,30 | 4,08 | 3,84 | 3,58 | 3,31 | 3,04 | 2,77 | 2,44 | 2,24 | 1,99 | 1,79 | 1,62 | 1,39 | 1,30 |
| 320  | 4,97 | 4,85 | 4,70 | 4,54 | 4,34 | 4,10 | 3,96 | 3,61 | 3,34 | 3,05 | 2,78 | 2,46 | 2,23 | 1,98 | 1,77 | 1,55 |
| 340  | 5,07 | 5,04 | 4,99 | 4,85 | 4,71 | 4,56 | 4,36 | 4,13 | 3,89 | 3,64 | 3,35 | 3,07 | 2,80 | 2,47 | 2,24 | 1,99 |
| 360  | 4,99 | 5,04 | 5,06 | 5,04 | 4,98 | 4,89 | 4,74 | 4,58 | 4,39 | 4,16 | 3,92 | 3,66 | 3,38 | 3,11 | 2,82 | 2,49 |
| 380  | 4,78 | 4,90 | 4,98 | 5,02 | 5,05 | 4,92 | 4,98 | 4,89 | 4,76 | 4,60 | 4,41 | 4,20 | 3,96 | 3,70 | 3,42 | 3,13 |
| 400  | 4,42 | 4,60 | 4,74 | 4,86 | 4,97 | 5,00 | 5,04 | 5,00 | 4,98 | 4,89 | 4,77 | 4,62 | 4,44 | 4,22 | 4,00 | 3,73 |
| 420  | 4,10 | 4,25 | 4,42 | 4,53 | 4,72 | 4,83 | 4,95 | 4,99 | 5,01 | 4,91 | 4,97 | 4,89 | 4,80 | 4,64 | 4,46 | 4,24 |
| 440  | 3,74 | 3,92 | 4,08 | 4,26 | 4,40 | 4,56 | 4,70 | 4,81 | 4,90 | 4,96 | 5,01 | 5,00 | 4,95 | 4,90 | 4,79 | 4,64 |
| 460  | 3,41 | 3,60 | 3,76 | 3,92 | 4,10 | 4,25 | 4,39 | 4,55 | 4,68 | 4,79 | 4,89 | 4,94 | 4,99 | 4,97 | 4,94 | 4,87 |
| 480  | 3,09 | 3,25 | 3,43 | 3,63 | 3,78 | 3,93 | 4,10 | 4,26 | 4,39 | 4,54 | 4,65 | 4,76 | 4,86 | 4,91 | 4,96 | 4,96 |
| 500  | 2,83 | 2,94 | 3,14 | 3,31 | 3,47 | 3,63 | 3,80 | 3,95 | 4,10 | 4,26 | 4,39 | 4,52 | 4,65 | 4,74 | 4,84 | 4,88 |
| 520  | 2,55 | 2,71 | 2,88 | 2,99 | 3,21 | 3,34 | 3,49 | 3,66 | 3,82 | 3,98 | 4,12 | 4,26 | 4,38 | 4,52 | 4,63 | 4,74 |
| 540  | 2,19 | 2,41 | 2,59 | 2,75 | 2,92 | 3,03 | 3,24 | 3,39 | 3,53 | 3,69 | 3,84 | 3,98 | 4,14 | 4,26 | 4,38 | 4,51 |
| 560  | 1,85 | 2,04 | 2,19 | 2,41 | 2,61 | 2,78 | 2,96 | 3,09 | 3,28 | 3,43 | 3,57 | 3,73 | 3,86 | 4,01 | 4,14 | 4,28 |
| 580  | 1,44 | 1,68 | 1,84 | 2,02 | 2,17 | 2,42 | 2,61 | 2,81 | 2,99 | 3,11 | 3,33 | 3,48 | 3,63 | 3,77 | 3,90 | 4,02 |
| 600  | 1,05 | 1,20 | 1,40 | 1,63 | 1,81 | 2,01 | 2,16 | 2,41 | 2,65 | 2,82 | 3,01 | 3,13 | 3,37 | 3,52 | 3,67 | 3,82 |
| 620  | 0,66 | 0,79 | 0,95 | 1,13 | 1,35 | 1,59 | 1,78 | 1,99 | 2,14 | 2,41 | 2,62 | 2,83 | 3,02 | 3,15 | 3,38 | 3,54 |
| 640  | 0,43 | 0,49 | 0,61 | 0,73 | 0,90 | 1,08 | 1,27 | 1,53 | 1,73 | 1,96 | 2,14 | 2,40 | 2,61 | 2,82 | 3,04 | 3,18 |
| 660  | 0,35 | 0,33 | 0,38 | 0,44 | 0,54 | 0,68 | 0,83 | 1,03 | 1,22 | 1,48 | 1,68 | 1,92 | 2,12 | 2,37 | 2,60 | 2,82 |
| 680  | 0,48 | 0,38 | 0,31 | 0,32 | 0,34 | 0,39 | 0,50 | 0,62 | 0,77 | 0,95 | 1,16 | 1,41 | 1,63 | 1,87 | 2,06 | 2,34 |
| 700  | 0,82 | 0,64 | 0,49 | 0,38 | 0,31 | 0,27 | 0,30 | 0,35 | 0,44 | 0,57 | 0,72 | 0,89 | 1,09 | 1,37 | 1,58 | 1,82 |
| 720  | 1,34 | 1,13 | 0,88 | 0,67 | 0,49 | 0,39 | 0,30 | 0,25 | 0,28 | 0,31 | 0,38 | 0,51 | 0,67 | 0,84 | 1,05 | 1,31 |
| 740  | 2,04 | 1,70 | 1,40 | 1,18 | 0,90 | 0,70 | 0,52 | 0,40 | 0,31 | 0,26 | 0,25 | 0,28 | 0,34 | 0,46 | 0,60 | 0,80 |
| 760  | 2,79 | 2,46 | 2,11 | 1,78 | 1,47 | 1,24 | 0,93 | 0,77 | 0,56 | 0,40 | 0,30 | 0,22 | 0,20 | 0,18 | 0,25 | 0,35 |
| 780  | 3,54 | 3,20 | 2,84 | 2,42 | 2,20 | 1,86 | 1,54 | 1,31 | 0,99 | 0,77 | 0,58 | 0,45 | 0,32 | 0,25 | 0,24 | 0,24 |
| 800  | 4,17 | 3,90 | 3,59 | 3,27 | 2,93 | 2,60 | 2,28 | 1,95 | 1,63 | 1,38 | 1,06 | 0,82 | 0,63 | 0,48 | 0,36 | 0,25 |
| 820  | 4,62 | 4,43 | 4,20 | 3,94 | 3,67 | 3,33 | 3,00 | 2,68 | 2,35 | 2,01 | 1,71 | 1,46 | 1,12 | 0,88 | 0,67 | 0,60 |
| 840  | 4,77 | 4,73 | 4,63 | 4,44 | 4,22 | 3,97 | 3,69 | 3,38 | 3,06 | 2,73 | 2,41 | 2,10 | 1,78 | 1,55 | 1,20 | 0,96 |
| 860  | 4,61 | 4,71 | 4,74 | 4,71 | 4,61 | 4,46 | 4,25 | 3,99 | 3,73 | 3,43 | 3,12 | 2,80 | 2,49 | 2,16 | 1,86 | 1,62 |
| 880  | 4,19 | 4,40 | 4,56 | 4,68 | 4,70 | 4,68 | 4,59 | 4,45 | 4,26 | 4,02 | 3,76 | 3,47 | 3,16 | 2,86 | 2,55 | 2,23 |
| 900  | 3,52 | 3,83 | 4,10 | 4,34 | 4,51 | 4,62 | 4,66 | 4,62 | 4,57 | 4,41 | 4,25 | 4,03 | 3,78 | 3,50 | 3,22 | 2,90 |
| 920  | 2,82 | 3,14 | 3,46 | 3,76 | 4,01 | 4,24 | 4,44 | 4,55 | 4,60 | 4,60 | 4,53 | 4,41 | 4,24 | 4,03 | 3,80 | 3,52 |
| 940  | 2,14 | 2,45 | 2,77 | 3,08 | 3,39 | 3,69 | 3,96 | 4,19 | 4,36 | 4,50 | 4,55 | 4,56 | 4,48 | 4,39 | 4,23 | 4,01 |
| 960  | 1,60 | 1,85 | 2,12 | 2,42 | 2,73 | 3,03 | 3,32 | 3,64 | 3,89 | 4,12 | 4,29 | 4,42 | 4,49 | 4,49 | 4,45 | 4,33 |
| 980  | 1,29 | 1,38 | 1,60 | 1,83 | 2,10 | 2,38 | 2,69 | 2,98 | 3,28 | 3,56 | 3,82 | 4,04 | 4,23 | 4,35 | 4,42 | 4,45 |
| 1000 | 0,98 | 1,05 | 1,22 | 1,40 | 1,61 | 1,83 | 2,09 | 2,36 | 2,55 | 2,90 | 3,23 | 3,51 | 3,76 | 3,98 | 4,15 | 4,27 |
|      | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |



TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,95 | 1,94 | 1,93 | 1,90 | 1,88 | 1,84 | 1,81 | 1,79 | 1,73 | 1,74 | 1,67 | 1,62 | 1,56 | 1,52 | 1,49 | 1,45 | 1,36 | 1,35 |
| 20   | 1,95 | 1,97 | 1,96 | 1,96 | 1,96 | 1,93 | 1,92 | 1,89 | 1,86 | 1,82 | 1,77 | 1,76 | 1,70 | 1,64 | 1,59 | 1,55 | 1,51 | 1,45 |
| 40   | 1,89 | 1,93 | 1,96 | 1,98 | 1,99 | 2,00 | 1,98 | 1,97 | 1,94 | 1,92 | 1,88 | 1,85 | 1,80 | 1,79 | 1,73 | 1,65 | 1,60 | 1,54 |
| 60   | 1,80 | 1,86 | 1,91 | 1,96 | 1,99 | 2,01 | 2,03 | 2,02 | 2,01 | 1,99 | 1,99 | 1,95 | 1,91 | 1,87 | 1,82 | 1,80 | 1,74 | 1,66 |
| 80   | 1,67 | 1,75 | 1,82 | 1,89 | 1,95 | 1,98 | 2,03 | 2,05 | 2,07 | 2,07 | 2,06 | 2,04 | 2,01 | 1,98 | 1,93 | 1,89 | 1,83 | 1,83 |
| 100  | 1,53 | 1,64 | 1,69 | 1,77 | 1,84 | 1,92 | 1,99 | 2,03 | 2,06 | 2,09 | 2,10 | 2,09 | 2,09 | 2,07 | 2,04 | 1,99 | 1,94 | 1,88 |
| 120  | 1,31 | 1,42 | 1,53 | 1,66 | 1,71 | 1,81 | 1,89 | 1,96 | 2,03 | 2,08 | 2,10 | 2,13 | 2,12 | 2,13 | 2,12 | 2,08 | 2,03 | 2,00 |
| 140  | 1,15 | 1,23 | 1,33 | 1,44 | 1,56 | 1,69 | 1,76 | 1,85 | 1,93 | 2,02 | 2,09 | 2,11 | 2,16 | 2,17 | 2,16 | 2,16 | 2,14 | 2,09 |
| 160  | 0,94 | 1,05 | 1,14 | 1,24 | 1,35 | 1,46 | 1,59 | 1,73 | 1,82 | 1,90 | 1,99 | 2,07 | 2,12 | 2,16 | 2,19 | 2,20 | 2,19 | 2,17 |
| 180  | 0,83 | 0,88 | 0,92 | 1,05 | 1,15 | 1,26 | 1,38 | 1,51 | 1,65 | 1,79 | 1,86 | 1,96 | 2,05 | 2,12 | 2,16 | 2,19 | 2,22 | 2,21 |
| 200  | 0,72 | 0,76 | 0,80 | 0,86 | 0,93 | 1,06 | 1,18 | 1,30 | 1,42 | 1,56 | 1,71 | 1,85 | 1,93 | 2,03 | 2,10 | 2,17 | 2,20 | 2,24 |
| 220  | 0,65 | 0,64 | 0,67 | 0,72 | 0,78 | 0,89 | 0,95 | 1,10 | 1,22 | 1,34 | 1,50 | 1,63 | 1,77 | 1,99 | 1,99 | 2,08 | 2,15 | 2,20 |
| 240  | 0,64 | 0,58 | 0,60 | 0,59 | 0,66 | 0,70 | 0,78 | 0,89 | 0,97 | 1,13 | 1,27 | 1,41 | 1,56 | 1,69 | 1,84 | 1,98 | 2,04 | 2,13 |
| 260  | 0,69 | 0,63 | 0,58 | 0,52 | 0,55 | 0,58 | 0,64 | 0,70 | 0,82 | 0,93 | 1,03 | 1,19 | 1,34 | 1,49 | 1,63 | 1,77 | 1,91 | 2,04 |
| 280  | 0,80 | 0,69 | 0,63 | 0,56 | 0,52 | 0,49 | 0,53 | 0,58 | 0,64 | 0,73 | 0,85 | 0,97 | 1,09 | 1,26 | 1,42 | 1,55 | 1,70 | 1,84 |
| 300  | 0,94 | 0,82 | 0,72 | 0,63 | 0,56 | 0,50 | 0,48 | 0,46 | 0,52 | 0,58 | 0,66 | 0,77 | 0,90 | 1,03 | 1,16 | 1,35 | 1,49 | 1,63 |
| 320  | 1,11 | 0,98 | 0,86 | 0,75 | 0,65 | 0,56 | 0,51 | 0,46 | 0,47 | 0,45 | 0,54 | 0,60 | 0,71 | 0,82 | 0,96 | 1,11 | 1,24 | 1,42 |
| 340  | 1,27 | 1,17 | 1,02 | 0,90 | 0,79 | 0,68 | 0,59 | 0,52 | 0,46 | 0,45 | 0,45 | 0,47 | 0,56 | 0,64 | 0,78 | 0,89 | 1,05 | 1,19 |
| 360  | 1,50 | 1,36 | 1,21 | 1,08 | 0,96 | 0,82 | 0,73 | 0,61 | 0,53 | 0,47 | 0,45 | 0,44 | 0,47 | 0,51 | 0,59 | 0,69 | 0,83 | 0,96 |
| 380  | 1,66 | 1,59 | 1,45 | 1,31 | 1,12 | 1,02 | 0,88 | 0,76 | 0,67 | 0,57 | 0,51 | 0,45 | 0,44 | 0,45 | 0,51 | 0,55 | 0,68 | 0,80 |
| 400  | 1,85 | 1,74 | 1,63 | 1,53 | 1,37 | 1,23 | 1,06 | 0,95 | 0,82 | 0,71 | 0,61 | 0,54 | 0,48 | 0,45 | 0,46 | 0,48 | 0,56 | 0,59 |
| 420  | 1,96 | 1,92 | 1,80 | 1,69 | 1,57 | 1,46 | 1,31 | 1,15 | 0,99 | 0,89 | 0,76 | 0,66 | 0,48 | 0,53 | 0,48 | 0,46 | 0,49 | 0,53 |
| 440  | 2,06 | 2,00 | 1,93 | 1,87 | 1,76 | 1,65 | 1,51 | 1,39 | 1,25 | 1,09 | 0,95 | 0,84 | 0,73 | 0,62 | 0,58 | 0,51 | 0,50 | 0,50 |
| 460  | 2,13 | 2,10 | 2,04 | 1,98 | 1,89 | 1,84 | 1,70 | 1,58 | 1,45 | 1,34 | 1,17 | 1,05 | 0,89 | 0,80 | 0,69 | 0,63 | 0,57 | 0,53 |
| 480  | 2,15 | 2,15 | 2,11 | 2,07 | 2,00 | 1,93 | 1,85 | 1,78 | 1,65 | 1,51 | 1,39 | 1,27 | 1,13 | 1,01 | 0,85 | 0,78 | 0,68 | 0,62 |
| 500  | 2,15 | 2,16 | 2,15 | 2,13 | 2,07 | 2,04 | 1,97 | 1,90 | 1,79 | 1,73 | 1,59 | 1,47 | 1,35 | 1,23 | 1,10 | 0,97 | 0,83 | 0,77 |
| 520  | 2,11 | 2,13 | 2,13 | 2,14 | 2,13 | 2,09 | 2,05 | 2,00 | 1,92 | 1,85 | 1,76 | 1,67 | 1,54 | 1,42 | 1,30 | 1,20 | 1,07 | 0,95 |
| 540  | 2,04 | 2,08 | 2,11 | 2,12 | 2,12 | 2,13 | 2,09 | 2,06 | 2,01 | 1,96 | 1,88 | 1,80 | 1,69 | 1,62 | 1,50 | 1,39 | 1,26 | 1,18 |
| 560  | 1,96 | 2,00 | 2,04 | 2,08 | 2,08 | 2,10 | 2,09 | 2,08 | 2,05 | 2,02 | 1,97 | 1,91 | 1,83 | 1,76 | 1,67 | 1,59 | 1,48 | 1,36 |
| 580  | 1,86 | 1,92 | 1,94 | 1,99 | 2,02 | 2,05 | 2,06 | 2,07 | 2,06 | 2,06 | 2,01 | 1,99 | 1,94 | 1,88 | 1,79 | 1,72 | 1,62 | 1,58 |
| 600  | 1,77 | 1,88 | 1,86 | 1,90 | 1,94 | 1,98 | 2,00 | 2,02 | 2,02 | 2,03 | 2,02 | 2,00 | 1,98 | 1,94 | 1,89 | 1,83 | 1,76 | 1,69 |
| 620  | 1,63 | 1,70 | 1,77 | 1,83 | 1,84 | 1,88 | 1,91 | 1,94 | 1,96 | 1,99 | 1,99 | 2,00 | 1,97 | 1,97 | 1,95 | 1,91 | 1,86 | 1,82 |
| 640  | 1,51 | 1,59 | 1,64 | 1,70 | 1,74 | 1,80 | 1,81 | 1,86 | 1,87 | 1,91 | 1,92 | 1,94 | 1,95 | 1,95 | 1,95 | 1,94 | 1,91 | 1,88 |
| 660  | 1,35 | 1,45 | 1,53 | 1,60 | 1,64 | 1,68 | 1,73 | 1,78 | 1,78 | 1,81 | 1,83 | 1,87 | 1,87 | 1,91 | 1,91 | 1,92 | 1,91 | 1,91 |
| 680  | 1,25 | 1,34 | 1,36 | 1,46 | 1,52 | 1,58 | 1,61 | 1,65 | 1,70 | 1,74 | 1,73 | 1,77 | 1,80 | 1,82 | 1,83 | 1,86 | 1,87 | 1,88 |
| 700  | 1,15 | 1,21 | 1,28 | 1,33 | 1,37 | 1,46 | 1,50 | 1,56 | 1,57 | 1,62 | 1,65 | 1,68 | 1,68 | 1,73 | 1,74 | 1,77 | 1,81 | 1,84 |
| 720  | 1,05 | 1,12 | 1,19 | 1,24 | 1,30 | 1,35 | 1,38 | 1,44 | 1,49 | 1,52 | 1,54 | 1,57 | 1,59 | 1,64 | 1,64 | 1,68 | 1,69 | 1,73 |
| 740  | 0,94 | 1,04 | 1,10 | 1,15 | 1,23 | 1,26 | 1,29 | 1,33 | 1,35 | 1,40 | 1,44 | 1,49 | 1,49 | 1,51 | 1,54 | 1,59 | 1,58 | 1,64 |
| 760  | 0,92 | 0,97 | 1,04 | 1,08 | 1,13 | 1,18 | 1,22 | 1,26 | 1,28 | 1,32 | 1,31 | 1,37 | 1,39 | 1,43 | 1,42 | 1,46 | 1,49 | 1,53 |
| 780  | 0,92 | 0,93 | 0,99 | 1,04 | 1,08 | 1,11 | 1,17 | 1,20 | 1,24 | 1,24 | 1,25 | 1,29 | 1,27 | 1,32 | 1,35 | 1,37 | 1,37 | 1,40 |
| 800  | 0,94 | 0,95 | 0,98 | 0,99 | 1,04 | 1,08 | 1,12 | 1,14 | 1,18 | 1,19 | 1,22 | 1,21 | 1,23 | 1,23 | 1,22 | 1,27 | 1,28 | 1,31 |
| 820  | 1,01 | 0,99 | 1,01 | 1,01 | 1,05 | 1,04 | 1,09 | 1,10 | 1,13 | 1,15 | 1,17 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,16 | 1,21 |
| 840  | 1,05 | 1,07 | 1,06 | 1,06 | 1,06 | 1,08 | 1,09 | 1,08 | 1,12 | 1,14 | 1,15 | 1,15 | 1,16 | 1,16 | 1,15 | 1,14 | 1,13 | 1,13 |
| 860  | 1,19 | 1,16 | 1,11 | 1,12 | 1,13 | 1,12 | 1,13 | 1,13 | 1,13 | 1,11 | 1,15 | 1,12 | 1,15 | 1,14 | 1,13 | 1,10 | 1,09 | 1,08 |
| 880  | 1,31 | 1,27 | 1,24 | 1,21 | 1,14 | 1,15 | 1,15 | 1,14 | 1,13 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,11 | 1,10 | 1,08 |
| 900  | 1,47 | 1,40 | 1,36 | 1,32 | 1,30 | 1,27 | 1,22 | 1,24 | 1,24 | 1,21 | 1,21 | 1,19 | 1,18 | 1,13 | 1,14 | 1,12 | 1,10 | 1,07 |
| 920  | 1,60 | 1,57 | 1,50 | 1,45 | 1,40 | 1,37 | 1,34 | 1,32 | 1,27 | 1,29 | 1,27 | 1,24 | 1,22 | 1,19 | 1,18 | 1,12 | 1,13 | 1,09 |
| 940  | 1,72 | 1,67 | 1,64 | 1,60 | 1,54 | 1,49 | 1,45 | 1,41 | 1,40 | 1,37 | 1,32 | 1,32 | 1,29 | 1,26 | 1,24 | 1,19 | 1,16 | 1,10 |
| 960  | 1,84 | 1,80 | 1,74 | 1,71 | 1,66 | 1,66 | 1,60 | 1,54 | 1,49 | 1,46 | 1,43 | 1,41 | 1,35 | 1,34 | 1,30 | 1,26 | 1,21 | 1,16 |
| 980  | 1,90 | 1,88 | 1,86 | 1,81 | 1,78 | 1,74 | 1,70 | 1,69 | 1,63 | 1,57 | 1,54 | 1,49 | 1,48 | 1,44 | 1,37 | 1,34 | 1,32 | 1,26 |
| 1000 | 1,95 | 1,94 | 1,93 | 1,90 | 1,88 | 1,84 | 1,81 | 1,79 | 1,73 | 1,74 | 1,67 | 1,62 | 1,56 | 1,52 | 1,49 | 1,45 | 1,36 | 1,35 |
|      | 0    | 10   | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  |



TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,35 | 1,30 | 1,24 | 1,20 | 1,13 | 1,07 | 0,99 | 0,95 | 0,90 | 0,85 | 0,81 | 0,77 | 0,75 | 0,74 | 0,74 | 0,76 | 0,81 | 0,85 | 0,94 |
| 20   | 1,45 | 1,37 | 1,35 | 1,29 | 1,23 | 1,17 | 1,09 | 1,03 | 0,95 | 0,92 | 0,84 | 0,81 | 0,76 | 0,73 | 0,72 | 0,72 | 0,74 | 0,76 | 0,82 |
| 40   | 1,54 | 1,50 | 1,44 | 1,35 | 1,32 | 1,26 | 1,19 | 1,14 | 1,06 | 0,98 | 0,90 | 0,86 | 0,80 | 0,78 | 0,73 | 0,72 | 0,69 | 0,72 | 0,73 |
| 60   | 1,66 | 1,60 | 1,54 | 1,49 | 1,42 | 1,34 | 1,29 | 1,23 | 1,16 | 1,08 | 1,01 | 0,96 | 0,86 | 0,82 | 0,78 | 0,73 | 0,71 | 0,69 | 0,70 |
| 80   | 1,83 | 1,73 | 1,65 | 1,59 | 1,53 | 1,46 | 1,41 | 1,30 | 1,26 | 1,20 | 1,12 | 1,06 | 0,98 | 0,91 | 0,83 | 0,80 | 0,75 | 0,72 | 0,70 |
| 100  | 1,88 | 1,84 | 1,80 | 1,72 | 1,64 | 1,58 | 1,50 | 1,43 | 1,38 | 1,28 | 1,23 | 1,16 | 1,09 | 1,02 | 0,94 | 0,89 | 0,80 | 0,78 | 0,74 |
| 120  | 2,00 | 1,94 | 1,89 | 1,82 | 1,76 | 1,67 | 1,59 | 1,50 | 1,42 | 1,41 | 1,34 | 1,23 | 1,19 | 1,14 | 1,06 | 0,99 | 0,92 | 0,87 | 0,79 |
| 140  | 2,09 | 2,05 | 1,99 | 1,93 | 1,87 | 1,80 | 1,76 | 1,68 | 1,59 | 1,51 | 1,44 | 1,38 | 1,31 | 1,21 | 1,17 | 1,11 | 1,03 | 0,98 | 0,92 |
| 160  | 2,17 | 2,13 | 2,08 | 2,03 | 1,97 | 1,91 | 1,83 | 1,71 | 1,71 | 1,63 | 1,55 | 1,47 | 1,41 | 1,34 | 1,27 | 1,19 | 1,16 | 1,09 | 1,02 |
| 180  | 2,21 | 2,20 | 2,17 | 2,12 | 2,07 | 2,01 | 1,94 | 1,87 | 1,80 | 1,73 | 1,69 | 1,60 | 1,52 | 1,44 | 1,37 | 1,32 | 1,26 | 1,17 | 1,13 |
| 200  | 2,24 | 2,24 | 2,23 | 2,19 | 2,16 | 2,10 | 2,04 | 1,98 | 1,91 | 1,83 | 1,76 | 1,68 | 1,65 | 1,56 | 1,48 | 1,41 | 1,34 | 1,30 | 1,25 |
| 220  | 2,20 | 2,24 | 2,25 | 2,24 | 2,21 | 2,18 | 2,12 | 2,07 | 1,99 | 1,93 | 1,85 | 1,78 | 1,71 | 1,65 | 1,62 | 1,52 | 1,45 | 1,39 | 1,33 |
| 240  | 2,13 | 2,19 | 2,23 | 2,25 | 2,24 | 2,23 | 2,19 | 2,13 | 2,09 | 2,02 | 1,95 | 1,88 | 1,81 | 1,72 | 1,67 | 1,60 | 1,57 | 1,50 | 1,42 |
| 260  | 2,04 | 2,10 | 2,17 | 2,22 | 2,25 | 2,26 | 2,23 | 2,21 | 2,16 | 2,11 | 2,04 | 1,96 | 1,89 | 1,82 | 1,75 | 1,68 | 1,63 | 1,57 | 1,55 |
| 280  | 1,84 | 1,97 | 2,10 | 2,13 | 2,21 | 2,23 | 2,25 | 2,23 | 2,20 | 2,16 | 2,11 | 2,04 | 1,97 | 1,90 | 1,88 | 1,77 | 1,70 | 1,63 | 1,59 |
| 300  | 1,63 | 1,77 | 1,89 | 2,03 | 2,14 | 2,17 | 2,20 | 2,22 | 2,22 | 2,20 | 2,15 | 2,11 | 2,06 | 1,98 | 1,90 | 1,84 | 1,77 | 1,71 | 1,65 |
| 320  | 1,42 | 1,57 | 1,71 | 1,83 | 1,96 | 2,07 | 2,16 | 2,19 | 2,21 | 2,21 | 2,19 | 2,16 | 2,11 | 2,05 | 1,98 | 1,90 | 1,85 | 1,77 | 1,72 |
| 340  | 1,19 | 1,32 | 1,50 | 1,65 | 1,77 | 1,89 | 2,00 | 2,10 | 2,18 | 2,17 | 2,17 | 2,17 | 2,13 | 2,10 | 2,04 | 1,97 | 1,90 | 1,84 | 1,77 |
| 360  | 0,96 | 1,12 | 1,27 | 1,39 | 1,57 | 1,71 | 1,83 | 1,93 | 2,03 | 2,10 | 2,17 | 2,13 | 2,14 | 2,11 | 2,08 | 2,02 | 1,96 | 1,89 | 1,84 |
| 380  | 0,80 | 0,95 | 1,09 | 1,24 | 1,39 | 1,50 | 1,66 | 1,78 | 1,87 | 1,97 | 2,04 | 2,11 | 2,13 | 2,11 | 2,09 | 2,05 | 2,01 | 1,95 | 1,88 |
| 400  | 0,59 | 0,72 | 0,87 | 1,00 | 1,12 | 1,29 | 1,43 | 1,53 | 1,70 | 1,81 | 1,90 | 1,97 | 2,02 | 2,07 | 2,09 | 2,05 | 2,02 | 1,97 | 1,92 |
| 420  | 0,53 | 0,60 | 0,65 | 0,80 | 0,93 | 1,07 | 1,21 | 1,37 | 1,49 | 1,59 | 1,73 | 1,83 | 1,91 | 1,96 | 1,99 | 2,01 | 2,03 | 1,99 | 1,93 |
| 440  | 0,50 | 0,53 | 0,59 | 0,66 | 0,74 | 0,85 | 1,01 | 1,14 | 1,29 | 1,42 | 1,54 | 1,63 | 1,77 | 1,85 | 1,89 | 1,93 | 1,96 | 1,96 | 1,98 |
| 460  | 1,53 | 0,54 | 0,54 | 0,59 | 0,65 | 0,74 | 0,83 | 0,97 | 1,09 | 1,23 | 1,35 | 1,48 | 1,58 | 1,66 | 1,76 | 1,83 | 1,86 | 1,89 | 1,88 |
| 480  | 0,62 | 0,59 | 0,56 | 0,59 | 0,60 | 0,65 | 0,71 | 0,81 | 0,89 | 1,04 | 1,16 | 1,28 | 1,39 | 1,50 | 1,61 | 1,66 | 1,76 | 1,79 | 1,81 |
| 500  | 0,77 | 0,70 | 0,64 | 0,62 | 0,61 | 0,63 | 0,66 | 0,73 | 0,80 | 0,89 | 0,98 | 1,11 | 1,21 | 1,34 | 1,43 | 1,54 | 1,61 | 1,65 | 1,72 |
| 520  | 0,95 | 0,83 | 0,77 | 0,72 | 0,67 | 0,67 | 0,67 | 0,69 | 0,74 | 0,80 | 0,87 | 0,97 | 1,04 | 1,08 | 1,26 | 1,36 | 1,44 | 1,54 | 1,60 |
| 540  | 1,18 | 1,05 | 0,95 | 0,83 | 0,80 | 0,76 | 0,71 | 0,72 | 0,72 | 0,75 | 0,79 | 0,86 | 0,94 | 1,03 | 1,09 | 1,12 | 1,29 | 1,38 | 1,45 |
| 560  | 1,36 | 1,25 | 1,17 | 1,06 | 0,96 | 0,86 | 0,83 | 0,79 | 0,76 | 0,78 | 0,79 | 0,83 | 0,86 | 0,93 | 0,99 | 1,05 | 1,12 | 1,23 | 1,31 |
| 580  | 1,58 | 1,45 | 1,34 | 1,24 | 1,17 | 1,07 | 0,99 | 0,90 | 0,88 | 0,84 | 0,82 | 0,84 | 0,86 | 0,89 | 0,93 | 1,00 | 1,04 | 1,12 | 1,14 |
| 600  | 1,69 | 1,61 | 1,55 | 1,44 | 1,34 | 1,26 | 1,18 | 1,10 | 1,02 | 0,94 | 0,91 | 0,89 | 0,89 | 0,90 | 0,91 | 0,93 | 0,97 | 1,02 | 1,08 |
| 620  | 1,82 | 1,74 | 1,68 | 1,61 | 1,55 | 1,44 | 1,35 | 1,27 | 1,21 | 1,10 | 1,07 | 0,99 | 0,97 | 0,94 | 0,94 | 0,95 | 0,96 | 0,99 | 1,02 |
| 640  | 1,88 | 1,84 | 1,80 | 1,73 | 1,68 | 1,59 | 1,55 | 1,47 | 1,38 | 1,30 | 1,26 | 1,13 | 1,11 | 1,03 | 1,03 | 1,01 | 0,99 | 1,01 | 1,00 |
| 660  | 1,91 | 1,88 | 1,87 | 1,82 | 1,79 | 1,73 | 1,68 | 1,61 | 1,57 | 1,49 | 1,41 | 1,33 | 1,29 | 1,18 | 1,15 | 1,09 | 1,08 | 1,01 | 1,02 |
| 680  | 1,88 | 1,90 | 1,88 | 1,87 | 1,86 | 1,84 | 1,80 | 1,75 | 1,69 | 1,64 | 1,60 | 1,53 | 1,45 | 1,39 | 1,33 | 1,21 | 1,19 | 1,13 | 1,11 |
| 700  | 1,84 | 1,85 | 1,87 | 1,87 | 1,89 | 1,87 | 1,87 | 1,83 | 1,81 | 1,77 | 1,73 | 1,66 | 1,64 | 1,56 | 1,49 | 1,42 | 1,38 | 1,27 | 1,25 |
| 720  | 1,73 | 1,77 | 1,80 | 1,82 | 1,85 | 1,86 | 1,88 | 1,88 | 1,88 | 1,86 | 1,83 | 1,80 | 1,76 | 1,70 | 1,68 | 1,59 | 1,52 | 1,46 | 1,41 |
| 740  | 1,64 | 1,65 | 1,71 | 1,75 | 1,79 | 1,82 | 1,85 | 1,87 | 1,88 | 1,91 | 1,90 | 1,89 | 1,88 | 1,84 | 1,80 | 1,75 | 1,70 | 1,63 | 1,56 |
| 760  | 1,53 | 1,56 | 1,58 | 1,63 | 1,69 | 1,73 | 1,78 | 1,82 | 1,86 | 1,89 | 1,92 | 1,94 | 1,94 | 1,93 | 1,91 | 1,88 | 1,84 | 1,79 | 1,76 |
| 780  | 1,40 | 1,43 | 1,49 | 1,50 | 1,50 | 1,61 | 1,68 | 1,72 | 1,79 | 1,83 | 1,89 | 1,92 | 1,95 | 1,97 | 1,98 | 1,97 | 1,96 | 1,91 | 1,87 |
| 800  | 1,31 | 1,31 | 1,35 | 1,39 | 1,46 | 1,48 | 1,54 | 1,60 | 1,66 | 1,74 | 1,80 | 1,86 | 1,92 | 1,96 | 2,00 | 2,03 | 2,03 | 2,02 | 2,01 |
| 820  | 1,21 | 1,21 | 1,25 | 1,26 | 1,30 | 1,35 | 1,43 | 1,46 | 1,55 | 1,60 | 1,69 | 1,75 | 1,84 | 1,91 | 1,96 | 2,00 | 2,05 | 2,06 | 2,08 |
| 840  | 1,13 | 1,10 | 1,14 | 1,16 | 1,19 | 1,22 | 1,26 | 1,33 | 1,41 | 1,47 | 1,56 | 1,63 | 1,73 | 1,81 | 1,89 | 1,96 | 2,02 | 2,06 | 2,09 |
| 860  | 1,08 | 1,07 | 1,07 | 1,08 | 1,09 | 1,10 | 1,15 | 1,18 | 1,25 | 1,32 | 1,40 | 1,46 | 1,56 | 1,65 | 1,74 | 1,83 | 1,93 | 2,00 | 2,07 |
| 880  | 1,08 | 1,06 | 1,05 | 1,04 | 1,04 | 1,02 | 1,05 | 1,08 | 1,13 | 1,16 | 1,24 | 1,31 | 1,41 | 1,48 | 1,58 | 1,69 | 1,79 | 1,88 | 1,97 |
| 900  | 1,07 | 1,03 | 1,01 | 1,00 | 0,95 | 0,95 | 0,95 | 0,93 | 0,87 | 1,02 | 1,10 | 1,14 | 1,24 | 1,31 | 1,44 | 1,51 | 1,62 | 1,73 | 1,84 |
| 920  | 1,09 | 1,04 | 1,01 | 0,98 | 0,96 | 0,94 | 0,91 | 0,89 | 0,89 | 0,89 | 0,95 | 1,02 | 1,09 | 1,16 | 1,23 | 1,34 | 1,46 | 1,56 | 1,67 |
| 940  | 1,10 | 1,08 | 1,04 | 1,00 | 0,96 | 0,93 | 0,89 | 0,87 | 0,85 | 0,84 | 0,86 | 0,85 | 0,94 | 1,00 | 1,09 | 1,16 | 1,26 | 1,39 | 1,52 |
| 960  | 1,16 | 1,12 | 1,04 | 0,99 | 0,95 | 0,92 | 0,87 | 0,84 | 0,80 | 0,83 | 0,79 | 0,80 | 0,82 | 0,84 | 0,94 | 1,00 | 1,11 | 1,18 | 1,29 |
| 980  | 1,26 | 1,23 | 1,16 | 1,11 | 1,04 | 1,00 | 0,95 | 0,89 | 0,85 | 0,82 | 0,79 | 0,78 | 0,77 | 0,78 | 0,81 | 0,84 | 0,94 | 1,02 | 1,13 |
| 1000 | 1,35 | 1,30 | 1,24 | 1,20 | 1,13 | 1,07 | 0,99 | 0,95 | 0,90 | 0,85 | 0,81 | 0,77 | 0,75 | 0,74 | 0,74 | 0,76 | 0,81 | 0,85 | 0,94 |
|      | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  |



TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 0,94 | 1,07 | 1,16 | 1,27 | 1,40 | 1,53 | 1,67 | 1,78 | 1,90 | 2,00 | 2,12 | 2,19 | 2,26 | 2,27 | 2,29 | 2,27 | 2,25 | 2,20 | 2,13 |
| 20   | 0,82 | 0,85 | 0,98 | 1,09 | 1,21 | 1,32 | 1,45 | 1,58 | 1,73 | 1,83 | 1,95 | 2,05 | 2,14 | 2,20 | 2,26 | 2,28 | 2,29 | 2,24 | 2,22 |
| 40   | 0,73 | 0,78 | 0,84 | 0,89 | 1,02 | 1,13 | 1,26 | 1,38 | 1,50 | 1,63 | 1,79 | 1,88 | 1,99 | 2,09 | 2,17 | 2,22 | 2,26 | 2,27 | 2,26 |
| 60   | 0,70 | 0,72 | 0,74 | 0,80 | 0,86 | 0,93 | 1,07 | 1,18 | 1,32 | 1,43 | 1,57 | 1,69 | 1,84 | 1,92 | 2,03 | 2,10 | 2,16 | 2,22 | 2,25 |
| 80   | 0,70 | 0,69 | 0,70 | 0,73 | 0,76 | 0,83 | 0,90 | 0,98 | 1,10 | 1,22 | 1,36 | 1,48 | 1,60 | 1,73 | 1,86 | 1,94 | 2,04 | 2,10 | 2,17 |
| 100  | 0,74 | 0,71 | 0,70 | 0,71 | 0,72 | 0,75 | 0,80 | 0,86 | 0,95 | 1,02 | 1,15 | 1,28 | 1,42 | 1,52 | 1,65 | 1,78 | 1,90 | 1,97 | 2,04 |
| 120  | 0,79 | 0,77 | 0,73 | 0,72 | 0,70 | 0,73 | 0,73 | 0,80 | 0,84 | 0,92 | 0,99 | 1,06 | 1,18 | 1,30 | 1,43 | 1,53 | 1,68 | 1,79 | 1,90 |
| 140  | 0,92 | 0,85 | 0,79 | 0,77 | 0,74 | 0,73 | 0,73 | 0,75 | 0,77 | 0,81 | 0,87 | 0,94 | 1,03 | 1,10 | 1,25 | 1,36 | 1,49 | 1,58 | 1,70 |
| 160  | 1,02 | 0,97 | 0,90 | 0,86 | 0,80 | 0,79 | 0,76 | 0,75 | 0,75 | 0,82 | 0,85 | 0,91 | 0,94 | 1,02 | 1,09 | 1,17 | 1,27 | 1,39 | 1,52 |
| 180  | 1,13 | 1,08 | 1,03 | 0,97 | 0,91 | 0,86 | 0,81 | 0,81 | 0,78 | 0,78 | 0,79 | 0,81 | 0,84 | 0,90 | 0,95 | 1,02 | 1,11 | 1,18 | 1,31 |
| 200  | 1,25 | 1,16 | 1,14 | 1,09 | 1,03 | 0,99 | 0,92 | 0,90 | 0,83 | 0,84 | 0,80 | 0,81 | 0,81 | 0,84 | 0,88 | 0,93 | 0,98 | 1,04 | 1,12 |
| 220  | 1,33 | 1,31 | 1,25 | 1,16 | 1,14 | 1,10 | 1,05 | 1,00 | 0,96 | 0,92 | 0,86 | 0,86 | 0,85 | 0,85 | 0,86 | 0,87 | 0,90 | 0,95 | 1,00 |
| 240  | 1,42 | 1,37 | 1,33 | 1,29 | 1,26 | 1,18 | 1,16 | 1,12 | 1,07 | 1,04 | 0,99 | 0,95 | 0,89 | 0,89 | 0,87 | 0,88 | 0,88 | 0,91 | 0,93 |
| 260  | 1,55 | 1,47 | 1,42 | 1,38 | 1,34 | 1,31 | 1,28 | 1,20 | 1,20 | 1,16 | 1,10 | 1,08 | 1,02 | 0,97 | 0,92 | 0,92 | 0,91 | 0,90 | 0,90 |
| 280  | 1,59 | 1,53 | 1,52 | 1,48 | 1,42 | 1,39 | 1,36 | 1,34 | 1,30 | 1,24 | 1,22 | 1,20 | 1,15 | 1,12 | 1,05 | 1,02 | 0,95 | 0,95 | 0,93 |
| 300  | 1,65 | 1,61 | 1,56 | 1,52 | 1,52 | 1,48 | 1,44 | 1,41 | 1,39 | 1,36 | 1,34 | 1,29 | 1,26 | 1,23 | 1,19 | 1,14 | 1,08 | 1,04 | 0,99 |
| 320  | 1,72 | 1,66 | 1,61 | 1,57 | 1,54 | 1,51 | 1,54 | 1,49 | 1,47 | 1,45 | 1,43 | 1,42 | 1,39 | 1,34 | 1,32 | 1,28 | 1,22 | 1,17 | 1,11 |
| 340  | 1,77 | 1,71 | 1,67 | 1,62 | 1,59 | 1,56 | 1,55 | 1,54 | 1,55 | 1,54 | 1,52 | 1,49 | 1,47 | 1,46 | 1,45 | 1,39 | 1,37 | 1,32 | 1,26 |
| 360  | 1,84 | 1,77 | 1,71 | 1,68 | 1,62 | 1,59 | 1,57 | 1,56 | 1,56 | 1,55 | 1,59 | 1,57 | 1,55 | 1,56 | 1,53 | 1,53 | 1,50 | 1,43 | 1,40 |
| 380  | 1,88 | 1,82 | 1,76 | 1,70 | 1,66 | 1,63 | 1,59 | 1,58 | 1,59 | 1,58 | 1,59 | 1,60 | 1,65 | 1,63 | 1,62 | 1,61 | 1,60 | 1,59 | 1,55 |
| 400  | 1,92 | 1,86 | 1,80 | 1,74 | 1,70 | 1,65 | 1,63 | 1,60 | 1,58 | 1,59 | 1,60 | 1,61 | 1,63 | 1,66 | 1,70 | 1,69 | 1,68 | 1,68 | 1,66 |
| 420  | 1,93 | 1,88 | 1,85 | 1,79 | 1,72 | 1,69 | 1,64 | 1,61 | 1,60 | 1,58 | 1,60 | 1,62 | 1,63 | 1,65 | 1,69 | 1,72 | 1,74 | 1,76 | 1,75 |
| 440  | 1,98 | 1,90 | 1,86 | 1,80 | 1,76 | 1,70 | 1,66 | 1,63 | 1,60 | 1,59 | 1,58 | 1,59 | 1,63 | 1,64 | 1,68 | 1,72 | 1,75 | 1,79 | 1,84 |
| 460  | 1,88 | 1,89 | 1,89 | 1,81 | 1,77 | 1,72 | 1,68 | 1,64 | 1,60 | 1,59 | 1,58 | 1,58 | 1,59 | 1,63 | 1,66 | 1,71 | 1,74 | 1,79 | 1,84 |
| 480  | 1,81 | 1,82 | 1,81 | 1,82 | 1,80 | 1,72 | 1,69 | 1,65 | 1,61 | 1,59 | 1,57 | 1,56 | 1,58 | 1,58 | 1,62 | 1,66 | 1,70 | 1,77 | 1,81 |
| 500  | 1,72 | 1,76 | 1,76 | 1,75 | 1,74 | 1,73 | 1,71 | 1,65 | 1,61 | 1,58 | 1,56 | 1,54 | 1,54 | 1,55 | 1,59 | 1,61 | 1,67 | 1,72 | 1,78 |
| 520  | 1,60 | 1,61 | 1,68 | 1,68 | 1,69 | 1,67 | 1,66 | 1,63 | 1,64 | 1,56 | 1,54 | 1,53 | 1,52 | 1,53 | 1,53 | 1,58 | 1,61 | 1,65 | 1,72 |
| 540  | 1,45 | 1,52 | 1,56 | 1,57 | 1,61 | 1,62 | 1,60 | 1,59 | 1,56 | 1,56 | 1,59 | 1,51 | 1,50 | 1,49 | 1,50 | 1,51 | 1,55 | 1,60 | 1,64 |
| 560  | 1,31 | 1,49 | 1,46 | 1,52 | 1,55 | 1,55 | 1,59 | 1,59 | 1,46 | 1,55 | 1,53 | 1,52 | 1,52 | 1,47 | 1,47 | 1,47 | 1,50 | 1,53 | 1,59 |
| 580  | 1,14 | 1,25 | 1,30 | 1,37 | 1,40 | 1,43 | 1,46 | 1,45 | 1,48 | 1,45 | 1,44 | 1,43 | 1,41 | 1,43 | 1,45 | 1,43 | 1,43 | 1,46 | 1,51 |
| 600  | 1,08 | 1,12 | 1,16 | 1,23 | 1,28 | 1,33 | 1,36 | 1,38 | 1,40 | 1,36 | 1,39 | 1,39 | 1,37 | 1,35 | 1,37 | 1,38 | 1,42 | 1,40 | 1,43 |
| 620  | 1,02 | 1,06 | 1,09 | 1,14 | 1,19 | 1,25 | 1,28 | 1,33 | 1,33 | 1,37 | 1,37 | 1,34 | 1,35 | 1,35 | 1,33 | 1,32 | 1,32 | 1,35 | 1,37 |
| 640  | 1,00 | 1,02 | 1,03 | 1,07 | 1,09 | 1,13 | 1,13 | 1,17 | 1,21 | 1,23 | 1,25 | 1,25 | 1,25 | 1,22 | 1,25 | 1,26 | 1,25 | 1,27 | 1,28 |
| 660  | 1,02 | 1,03 | 1,02 | 1,04 | 1,05 | 1,07 | 1,08 | 1,11 | 1,09 | 1,14 | 1,16 | 1,17 | 1,17 | 1,19 | 1,18 | 1,16 | 1,19 | 1,20 | 1,22 |
| 680  | 1,11 | 1,08 | 1,07 | 1,05 | 1,04 | 1,04 | 1,05 | 1,05 | 1,06 | 1,06 | 1,05 | 1,09 | 1,10 | 1,12 | 1,11 | 1,12 | 1,13 | 1,10 | 1,16 |
| 700  | 1,25 | 1,16 | 1,14 | 1,11 | 1,07 | 1,07 | 1,04 | 1,05 | 1,03 | 1,02 | 1,02 | 1,03 | 1,01 | 1,03 | 1,04 | 1,05 | 1,05 | 1,08 | 1,07 |
| 720  | 1,41 | 1,30 | 1,27 | 1,18 | 1,16 | 1,11 | 1,07 | 1,05 | 1,04 | 1,02 | 0,99 | 0,98 | 0,98 | 0,97 | 0,96 | 0,99 | 0,96 | 0,99 | 1,00 |
| 740  | 1,56 | 1,50 | 1,45 | 1,32 | 1,29 | 1,20 | 1,16 | 1,12 | 1,07 | 1,05 | 1,02 | 0,99 | 0,95 | 0,95 | 0,93 | 0,94 | 0,90 | 0,93 | 0,93 |
| 760  | 1,76 | 1,67 | 1,60 | 1,53 | 1,46 | 1,33 | 1,28 | 1,16 | 1,12 | 1,10 | 1,08 | 1,04 | 1,00 | 0,96 | 0,94 | 0,92 | 0,89 | 0,88 | 0,86 |
| 780  | 1,87 | 1,82 | 1,78 | 1,70 | 1,62 | 1,54 | 1,48 | 1,33 | 1,28 | 1,18 | 1,14 | 1,08 | 1,03 | 0,99 | 0,94 | 0,90 | 0,87 | 0,87 | 0,85 |
| 800  | 2,01 | 1,95 | 1,92 | 1,85 | 1,81 | 1,72 | 1,63 | 1,54 | 1,47 | 1,33 | 1,28 | 1,17 | 1,12 | 1,04 | 0,99 | 0,94 | 0,89 | 0,86 | 0,83 |
| 820  | 2,08 | 2,07 | 2,04 | 1,99 | 1,95 | 1,87 | 1,83 | 1,73 | 1,63 | 1,54 | 1,45 | 1,31 | 1,25 | 1,14 | 1,08 | 1,02 | 0,95 | 0,90 | 0,85 |
| 840  | 2,09 | 2,10 | 2,11 | 2,08 | 2,05 | 1,98 | 1,94 | 1,85 | 1,81 | 1,70 | 1,60 | 1,50 | 1,43 | 1,33 | 1,23 | 1,12 | 1,05 | 0,96 | 0,90 |
| 860  | 2,07 | 2,11 | 2,15 | 2,16 | 2,17 | 2,13 | 2,09 | 2,04 | 1,97 | 1,88 | 1,82 | 1,71 | 1,59 | 1,48 | 1,39 | 1,28 | 1,18 | 1,05 | 1,00 |
| 880  | 1,97 | 2,05 | 2,12 | 2,16 | 2,20 | 2,20 | 2,20 | 2,15 | 2,12 | 2,04 | 1,96 | 1,87 | 1,80 | 1,67 | 1,56 | 1,44 | 1,36 | 1,25 | 1,13 |
| 900  | 1,84 | 1,93 | 2,03 | 2,10 | 2,16 | 2,21 | 2,24 | 2,23 | 2,20 | 2,16 | 2,12 | 2,02 | 1,94 | 1,85 | 1,77 | 1,63 | 1,50 | 1,39 | 1,31 |
| 920  | 1,67 | 1,78 | 1,90 | 2,00 | 2,09 | 2,16 | 2,22 | 2,25 | 2,26 | 2,25 | 2,22 | 2,18 | 2,09 | 2,01 | 1,92 | 1,80 | 1,72 | 1,58 | 1,47 |
| 940  | 1,52 | 1,61 | 1,73 | 1,84 | 1,96 | 2,05 | 2,15 | 2,20 | 2,26 | 2,28 | 2,25 | 2,23 | 2,19 | 2,11 | 2,04 | 1,95 | 1,88 | 1,76 | 1,67 |
| 960  | 1,29 | 1,43 | 1,56 | 1,65 | 1,78 | 1,89 | 2,00 | 2,11 | 2,19 | 2,24 | 2,28 | 2,28 | 2,29 | 2,24 | 2,20 | 2,12 | 2,04 | 1,93 | 1,83 |
| 980  | 1,13 | 1,21 | 1,35 | 1,49 | 1,62 | 1,71 | 1,86 | 1,95 | 2,07 | 2,16 | 2,22 | 2,27 | 2,30 | 2,30 | 2,27 | 2,23 | 2,17 | 2,08 | 1,99 |
| 1000 | 0,94 | 1,07 | 1,16 | 1,27 | 1,40 | 1,53 | 1,67 | 1,78 | 1,90 | 2,00 | 2,12 | 2,19 | 2,25 | 2,28 | 2,29 | 2,29 | 2,25 | 2,20 | 2,13 |
|      | 350  | 360  | 370  | 380  | 390  | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  |



## SOLAR TABLES.

TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  | 710  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 2,13 | 2,03 | 1,94 | 1,82 | 1,72 | 1,59 | 1,52 | 1,38 | 1,28 | 1,18 | 1,12 | 1,04 | 0,97 | 0,90 | 0,91 | 0,88 | 0,88 | 0,90 | 0,91 |
| 20   | 2,22 | 2,16 | 2,06 | 1,98 | 1,89 | 1,76 | 1,55 | 1,54 | 1,45 | 1,34 | 1,25 | 1,16 | 1,11 | 1,05 | 1,00 | 0,95 | 0,98 | 0,96 | 0,97 |
| 40   | 2,26 | 2,22 | 2,18 | 2,09 | 2,02 | 1,91 | 1,82 | 1,70 | 1,60 | 1,49 | 1,42 | 1,31 | 1,23 | 1,15 | 1,12 | 1,05 | 1,02 | 0,97 | 0,98 |
| 60   | 2,25 | 2,24 | 2,22 | 2,17 | 2,12 | 2,04 | 1,96 | 1,86 | 1,77 | 1,65 | 1,55 | 1,46 | 1,39 | 1,31 | 1,22 | 1,17 | 1,14 | 1,10 | 1,06 |
| 80   | 2,17 | 2,20 | 2,21 | 2,20 | 2,17 | 2,12 | 2,06 | 1,98 | 1,90 | 1,80 | 1,70 | 1,59 | 1,52 | 1,42 | 1,40 | 1,29 | 1,23 | 1,18 | 1,17 |
| 100  | 2,04 | 2,10 | 2,16 | 2,17 | 2,18 | 2,15 | 2,11 | 2,06 | 1,99 | 1,92 | 1,84 | 1,75 | 1,65 | 1,56 | 1,49 | 1,41 | 1,39 | 1,30 | 1,26 |
| 120  | 1,90 | 1,94 | 2,02 | 2,06 | 2,08 | 2,09 | 2,10 | 2,05 | 2,02 | 1,96 | 1,91 | 1,83 | 1,77 | 1,68 | 1,62 | 1,54 | 1,49 | 1,44 | 1,41 |
| 140  | 1,70 | 1,80 | 1,90 | 1,95 | 2,02 | 2,05 | 2,08 | 2,08 | 2,07 | 2,04 | 1,99 | 1,95 | 1,89 | 1,81 | 1,74 | 1,66 | 1,60 | 1,53 | 1,49 |
| 160  | 1,52 | 1,61 | 1,70 | 1,80 | 1,94 | 1,94 | 1,99 | 2,01 | 2,03 | 2,03 | 2,01 | 1,98 | 1,94 | 1,89 | 1,83 | 1,76 | 1,71 | 1,64 | 1,61 |
| 180  | 1,31 | 1,42 | 1,52 | 1,61 | 1,70 | 1,79 | 1,88 | 1,89 | 1,95 | 1,97 | 1,99 | 1,96 | 1,96 | 1,93 | 1,89 | 1,85 | 1,80 | 1,75 | 1,69 |
| 200  | 1,12 | 1,19 | 1,32 | 1,41 | 1,52 | 1,59 | 1,68 | 1,77 | 1,84 | 1,86 | 1,91 | 1,90 | 1,91 | 1,92 | 1,91 | 1,88 | 1,86 | 1,79 | 1,77 |
| 220  | 1,00 | 1,07 | 1,15 | 1,21 | 1,33 | 1,42 | 1,52 | 1,59 | 1,67 | 1,73 | 1,80 | 1,82 | 1,85 | 1,87 | 1,86 | 1,87 | 1,86 | 1,83 | 1,81 |
| 240  | 0,93 | 0,99 | 1,01 | 1,08 | 1,15 | 1,21 | 1,31 | 1,40 | 1,50 | 1,55 | 1,63 | 1,70 | 1,77 | 1,76 | 1,81 | 1,81 | 1,83 | 1,84 | 1,83 |
| 260  | 0,90 | 0,91 | 0,94 | 0,98 | 1,02 | 1,08 | 1,15 | 1,19 | 1,29 | 1,39 | 1,42 | 1,52 | 1,60 | 1,65 | 1,71 | 1,73 | 1,76 | 1,77 | 1,79 |
| 280  | 0,93 | 0,92 | 0,91 | 0,93 | 0,95 | 0,99 | 1,01 | 1,07 | 1,14 | 1,17 | 1,28 | 1,35 | 1,43 | 1,49 | 1,56 | 1,61 | 1,67 | 1,68 | 1,72 |
| 300  | 0,99 | 0,98 | 0,94 | 0,93 | 0,92 | 0,93 | 0,94 | 0,98 | 1,01 | 1,06 | 1,11 | 1,14 | 1,26 | 1,32 | 1,41 | 1,45 | 1,51 | 1,57 | 1,64 |
| 320  | 1,11 | 1,07 | 1,00 | 0,97 | 0,94 | 0,93 | 0,91 | 0,92 | 0,92 | 0,95 | 0,98 | 1,02 | 1,07 | 1,12 | 1,21 | 1,28 | 1,37 | 1,42 | 1,48 |
| 340  | 1,26 | 1,19 | 1,14 | 1,09 | 1,01 | 0,98 | 0,94 | 0,90 | 0,88 | 0,89 | 0,87 | 0,90 | 0,92 | 0,96 | 1,01 | 1,05 | 1,14 | 1,22 | 1,30 |
| 360  | 1,40 | 1,36 | 1,28 | 1,23 | 1,15 | 1,09 | 0,99 | 0,98 | 0,92 | 0,90 | 0,88 | 0,87 | 0,87 | 0,89 | 0,92 | 0,96 | 1,02 | 1,04 | 1,15 |
| 380  | 1,55 | 1,46 | 1,44 | 1,38 | 1,30 | 1,23 | 1,15 | 1,07 | 0,99 | 0,94 | 0,89 | 0,86 | 0,84 | 0,83 | 0,83 | 0,86 | 0,89 | 0,92 | 0,98 |
| 400  | 1,66 | 1,64 | 1,60 | 1,50 | 1,47 | 1,40 | 1,31 | 1,23 | 1,14 | 0,96 | 0,95 | 0,92 | 0,86 | 0,84 | 0,79 | 0,78 | 0,80 | 0,83 | 0,84 |
| 420  | 1,75 | 1,74 | 1,72 | 1,68 | 1,63 | 1,53 | 1,49 | 1,40 | 1,30 | 1,22 | 1,11 | 1,03 | 0,92 | 0,88 | 0,82 | 0,78 | 0,75 | 0,76 | 0,77 |
| 440  | 1,84 | 1,84 | 1,81 | 1,80 | 1,75 | 1,73 | 1,65 | 1,55 | 1,48 | 1,39 | 1,28 | 1,18 | 1,07 | 0,98 | 0,88 | 0,83 | 0,77 | 0,72 | 0,71 |
| 460  | 1,84 | 1,86 | 1,92 | 1,90 | 1,88 | 1,84 | 1,81 | 1,74 | 1,67 | 1,55 | 1,47 | 1,35 | 1,26 | 1,15 | 1,03 | 0,93 | 0,82 | 0,78 | 0,71 |
| 480  | 1,81 | 1,86 | 1,90 | 1,94 | 1,99 | 1,97 | 1,93 | 1,88 | 1,83 | 1,76 | 1,67 | 1,53 | 1,44 | 1,32 | 1,18 | 1,07 | 0,94 | 0,85 | 0,73 |
| 500  | 1,78 | 1,84 | 1,90 | 1,94 | 1,99 | 2,01 | 2,05 | 2,02 | 1,97 | 1,91 | 1,83 | 1,75 | 1,65 | 1,49 | 1,41 | 1,28 | 1,16 | 1,04 | 0,91 |
| 520  | 1,72 | 1,79 | 1,84 | 1,93 | 1,98 | 2,02 | 2,06 | 2,07 | 2,10 | 2,06 | 1,99 | 1,93 | 1,83 | 1,74 | 1,61 | 1,47 | 1,36 | 1,23 | 1,09 |
| 540  | 1,64 | 1,73 | 1,79 | 1,86 | 1,93 | 2,00 | 2,06 | 2,10 | 2,13 | 2,12 | 2,15 | 2,08 | 1,98 | 1,89 | 1,77 | 1,66 | 1,54 | 1,38 | 1,27 |
| 560  | 1,59 | 1,63 | 1,71 | 1,79 | 1,86 | 1,94 | 2,01 | 2,08 | 2,13 | 2,17 | 2,18 | 2,17 | 2,16 | 2,09 | 2,00 | 1,88 | 1,77 | 1,65 | 1,52 |
| 580  | 1,51 | 1,57 | 1,61 | 1,69 | 1,79 | 1,87 | 1,95 | 2,03 | 2,15 | 2,20 | 2,17 | 2,21 | 2,19 | 2,19 | 2,09 | 2,09 | 1,96 | 1,85 | 1,73 |
| 600  | 1,43 | 1,48 | 1,54 | 1,62 | 1,67 | 1,77 | 1,85 | 1,94 | 2,02 | 2,11 | 2,15 | 2,22 | 2,25 | 2,22 | 2,24 | 2,20 | 2,16 | 2,06 | 1,92 |
| 620  | 1,37 | 1,39 | 1,45 | 1,51 | 1,58 | 1,67 | 1,75 | 1,84 | 1,94 | 2,02 | 2,11 | 2,19 | 2,24 | 2,27 | 2,29 | 2,23 | 2,25 | 2,19 | 2,14 |
| 640  | 1,28 | 1,34 | 1,39 | 1,42 | 1,44 | 1,55 | 1,65 | 1,73 | 1,82 | 1,93 | 2,01 | 2,12 | 2,19 | 2,24 | 2,27 | 2,31 | 2,31 | 2,25 | 2,24 |
| 660  | 1,22 | 1,24 | 1,28 | 1,34 | 1,41 | 1,46 | 1,52 | 1,61 | 1,71 | 1,80 | 1,90 | 2,00 | 2,10 | 2,17 | 2,25 | 2,29 | 2,32 | 2,33 | 2,31 |
| 680  | 1,16 | 1,17 | 1,20 | 1,22 | 1,28 | 1,35 | 1,45 | 1,50 | 1,58 | 1,68 | 1,77 | 1,87 | 1,97 | 2,08 | 2,16 | 2,23 | 2,28 | 2,32 | 2,34 |
| 700  | 1,07 | 1,07 | 1,12 | 1,15 | 1,18 | 1,24 | 1,30 | 1,39 | 1,49 | 1,55 | 1,65 | 1,74 | 1,85 | 1,95 | 2,05 | 2,15 | 2,22 | 2,27 | 2,32 |
| 720  | 1,00 | 1,03 | 1,04 | 1,04 | 1,11 | 1,15 | 1,18 | 1,27 | 1,33 | 1,43 | 1,55 | 1,61 | 1,71 | 1,81 | 1,91 | 2,02 | 2,11 | 2,19 | 2,25 |
| 740  | 0,93 | 0,96 | 0,97 | 0,99 | 1,03 | 1,03 | 1,10 | 1,15 | 1,22 | 1,30 | 1,37 | 1,48 | 1,60 | 1,66 | 1,78 | 1,87 | 1,99 | 2,08 | 2,16 |
| 760  | 0,86 | 0,89 | 0,90 | 0,92 | 0,94 | 0,98 | 1,02 | 1,03 | 1,11 | 1,18 | 1,25 | 1,33 | 1,43 | 1,55 | 1,66 | 1,73 | 1,83 | 1,94 | 2,03 |
| 780  | 0,85 | 0,84 | 0,81 | 0,85 | 0,87 | 0,91 | 0,92 | 0,97 | 1,02 | 1,05 | 1,14 | 1,23 | 1,29 | 1,38 | 1,48 | 1,59 | 1,71 | 1,79 | 1,89 |
| 800  | 0,83 | 0,81 | 0,79 | 0,79 | 0,78 | 0,82 | 0,84 | 0,88 | 0,92 | 0,98 | 1,02 | 1,07 | 1,17 | 1,25 | 1,33 | 1,43 | 1,53 | 1,66 | 1,78 |
| 820  | 0,85 | 0,83 | 0,80 | 0,79 | 0,78 | 0,79 | 0,77 | 0,83 | 0,86 | 0,90 | 0,94 | 1,00 | 1,06 | 1,12 | 1,22 | 1,31 | 1,39 | 1,47 | 1,58 |
| 840  | 0,90 | 0,86 | 0,82 | 0,79 | 0,77 | 0,76 | 0,77 | 0,77 | 0,77 | 0,83 | 0,86 | 0,92 | 0,97 | 1,04 | 1,11 | 1,15 | 1,26 | 1,35 | 1,43 |
| 860  | 1,00 | 0,93 | 0,86 | 0,83 | 0,79 | 0,77 | 0,75 | 0,76 | 0,76 | 0,78 | 0,79 | 0,85 | 0,88 | 0,95 | 1,00 | 1,07 | 1,14 | 1,19 | 1,31 |
| 880  | 1,13 | 1,00 | 0,96 | 0,88 | 0,83 | 0,81 | 0,77 | 0,75 | 0,75 | 0,76 | 0,77 | 0,80 | 0,80 | 0,87 | 0,91 | 0,99 | 1,04 | 1,12 | 1,18 |
| 900  | 1,31 | 1,19 | 1,08 | 0,98 | 0,92 | 0,86 | 0,81 | 0,79 | 0,77 | 0,76 | 0,75 | 0,76 | 0,78 | 0,84 | 0,83 | 0,99 | 0,96 | 1,17 | 1,11 |
| 920  | 1,47 | 1,35 | 1,27 | 1,13 | 1,04 | 0,93 | 0,89 | 0,83 | 0,80 | 0,78 | 0,77 | 0,77 | 0,78 | 0,80 | 0,82 | 0,86 | 0,87 | 0,94 | 1,00 |
| 940  | 1,67 | 1,54 | 1,42 | 1,30 | 1,21 | 1,10 | 1,01 | 0,92 | 0,88 | 0,83 | 0,83 | 0,80 | 0,79 | 0,80 | 0,80 | 0,83 | 0,86 | 0,90 | 0,91 |
| 960  | 1,83 | 1,69 | 1,62 | 1,48 | 1,36 | 1,26 | 1,17 | 1,06 | 0,99 | 0,89 | 0,87 | 0,83 | 0,82 | 0,81 | 0,81 | 0,84 | 0,84 | 0,88 | 0,89 |
| 980  | 1,99 | 1,88 | 1,77 | 1,65 | 1,56 | 1,43 | 1,31 | 1,21 | 1,13 | 1,05 | 0,98 | 0,89 | 0,88 | 0,86 | 0,84 | 0,86 | 0,86 | 0,88 | 0,89 |
| 1000 | 2,13 | 2,03 | 1,94 | 1,82 | 1,72 | 1,59 | 1,52 | 1,38 | 1,28 | 1,18 | 1,12 | 1,04 | 0,97 | 0,90 | 0,91 | 0,88 | 0,88 | 0,90 | 0,91 |
|      | 530  | 540  | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  | 710  |



TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 0,91 | 0,93 | 0,94 | 0,97 | 1,00 | 1,01 | 1,03 | 1,09 | 1,11 | 1,16 | 1,19 | 1,24 | 1,27 | 1,29 | 1,36 | 1,42 | 1,44 | 1,51 | 1,57 |
| 20   | 0,97 | 0,99 | 0,99 | 1,00 | 1,01 | 1,02 | 1,03 | 1,06 | 1,06 | 1,10 | 1,12 | 1,16 | 1,18 | 1,22 | 1,24 | 1,25 | 1,32 | 1,36 | 1,41 |
| 40   | 0,98 | 0,99 | 0,99 | 1,01 | 1,01 | 1,03 | 1,04 | 1,06 | 1,06 | 1,08 | 1,06 | 1,10 | 1,11 | 1,14 | 1,15 | 1,18 | 1,21 | 1,21 | 1,28 |
| 60   | 1,06 | 1,02 | 1,05 | 1,05 | 1,05 | 1,06 | 1,07 | 1,08 | 1,08 | 1,08 | 1,08 | 1,09 | 1,06 | 1,09 | 1,10 | 1,12 | 1,12 | 1,13 | 1,16 |
| 80   | 1,17 | 1,14 | 1,12 | 1,08 | 1,10 | 1,10 | 1,10 | 1,13 | 1,12 | 1,11 | 1,12 | 1,11 | 1,09 | 1,09 | 1,08 | 1,07 | 1,06 | 1,07 | 1,06 |
| 100  | 1,26 | 1,23 | 1,22 | 1,20 | 1,18 | 1,15 | 1,17 | 1,16 | 1,16 | 1,18 | 1,16 | 1,15 | 1,12 | 1,10 | 1,09 | 1,05 | 1,02 | 1,03 | 1,02 |
| 120  | 1,41 | 1,35 | 1,33 | 1,31 | 1,32 | 1,26 | 1,25 | 1,21 | 1,23 | 1,22 | 1,22 | 1,21 | 1,18 | 1,17 | 1,12 | 1,11 | 1,05 | 1,04 | 1,01 |
| 140  | 1,49 | 1,43 | 1,41 | 1,39 | 1,35 | 1,34 | 1,35 | 1,33 | 1,31 | 1,27 | 1,29 | 1,28 | 1,25 | 1,24 | 1,21 | 1,16 | 1,11 | 1,08 | 1,02 |
| 160  | 1,61 | 1,53 | 1,49 | 1,45 | 1,46 | 1,43 | 1,41 | 1,40 | 1,41 | 1,39 | 1,37 | 1,34 | 1,35 | 1,31 | 1,28 | 1,25 | 1,20 | 1,14 | 1,09 |
| 180  | 1,69 | 1,65 | 1,60 | 1,56 | 1,53 | 1,50 | 1,52 | 1,50 | 1,49 | 1,47 | 1,49 | 1,45 | 1,44 | 1,39 | 1,37 | 1,34 | 1,30 | 1,25 | 1,17 |
| 200  | 1,77 | 1,71 | 1,69 | 1,65 | 1,62 | 1,60 | 1,57 | 1,55 | 1,58 | 1,56 | 1,55 | 1,54 | 1,54 | 1,51 | 1,49 | 1,43 | 1,40 | 1,35 | 1,28 |
| 220  | 1,81 | 1,78 | 1,76 | 1,72 | 1,70 | 1,66 | 1,65 | 1,64 | 1,62 | 1,62 | 1,65 | 1,63 | 1,61 | 1,61 | 1,61 | 1,57 | 1,52 | 1,44 | 1,42 |
| 240  | 1,83 | 1,81 | 1,79 | 1,77 | 1,76 | 1,74 | 1,72 | 1,70 | 1,70 | 1,68 | 1,69 | 1,69 | 1,72 | 1,68 | 1,68 | 1,66 | 1,65 | 1,60 | 1,55 |
| 260  | 1,79 | 1,80 | 1,80 | 1,78 | 1,78 | 1,77 | 1,76 | 1,76 | 1,75 | 1,75 | 1,75 | 1,74 | 1,76 | 1,76 | 1,79 | 1,75 | 1,74 | 1,71 | 1,68 |
| 280  | 1,72 | 1,73 | 1,77 | 1,76 | 1,79 | 1,77 | 1,79 | 1,78 | 1,79 | 1,79 | 1,80 | 1,80 | 1,80 | 1,80 | 1,82 | 1,82 | 1,83 | 1,81 | 1,78 |
| 300  | 1,64 | 1,66 | 1,69 | 1,72 | 1,74 | 1,76 | 1,78 | 1,80 | 1,81 | 1,81 | 1,82 | 1,84 | 1,85 | 1,86 | 1,87 | 1,87 | 1,89 | 1,87 | 1,89 |
| 320  | 1,48 | 1,53 | 1,61 | 1,63 | 1,67 | 1,70 | 1,74 | 1,75 | 1,78 | 1,81 | 1,82 | 1,85 | 1,88 | 1,88 | 1,91 | 1,91 | 1,93 | 1,93 | 1,94 |
| 340  | 1,30 | 1,35 | 1,42 | 1,51 | 1,58 | 1,60 | 1,66 | 1,69 | 1,73 | 1,77 | 1,81 | 1,84 | 1,86 | 1,88 | 1,91 | 1,93 | 1,96 | 1,97 | 1,99 |
| 360  | 1,15 | 1,22 | 1,31 | 1,36 | 1,44 | 1,49 | 1,55 | 1,58 | 1,63 | 1,67 | 1,72 | 1,76 | 1,81 | 1,85 | 1,90 | 1,93 | 1,98 | 1,99 | 2,03 |
| 380  | 0,98 | 1,03 | 1,12 | 1,20 | 1,28 | 1,34 | 1,43 | 1,50 | 1,56 | 1,61 | 1,67 | 1,72 | 1,77 | 1,82 | 1,87 | 1,91 | 1,95 | 1,98 | 2,02 |
| 400  | 0,84 | 0,90 | 0,95 | 0,99 | 1,10 | 1,18 | 1,28 | 1,34 | 1,42 | 1,49 | 1,58 | 1,62 | 1,69 | 1,75 | 1,80 | 1,85 | 1,91 | 1,94 | 2,00 |
| 420  | 0,77 | 0,78 | 0,82 | 0,87 | 0,93 | 0,99 | 1,09 | 1,18 | 1,28 | 1,35 | 1,43 | 1,51 | 1,60 | 1,65 | 1,72 | 1,78 | 1,85 | 1,91 | 1,95 |
| 440  | 0,71 | 0,71 | 0,71 | 0,76 | 0,79 | 0,84 | 0,92 | 0,97 | 1,10 | 1,18 | 1,29 | 1,35 | 1,44 | 1,54 | 1,64 | 1,67 | 1,75 | 1,80 | 1,88 |
| 460  | 0,71 | 0,68 | 0,68 | 0,68 | 0,69 | 0,74 | 0,77 | 0,84 | 0,92 | 0,98 | 1,10 | 1,20 | 1,30 | 1,38 | 1,46 | 1,57 | 1,66 | 1,70 | 1,78 |
| 480  | 0,73 | 0,69 | 0,62 | 0,61 | 0,59 | 0,64 | 0,67 | 0,72 | 0,77 | 0,84 | 0,93 | 1,00 | 1,13 | 1,22 | 1,33 | 1,41 | 1,51 | 1,61 | 1,70 |
| 500  | 0,91 | 0,81 | 0,71 | 0,67 | 0,62 | 0,61 | 0,60 | 0,63 | 0,65 | 0,72 | 0,78 | 0,86 | 0,95 | 1,01 | 1,14 | 1,27 | 1,36 | 1,45 | 1,55 |
| 520  | 1,09 | 0,97 | 0,86 | 0,76 | 0,68 | 0,62 | 0,58 | 0,58 | 0,58 | 0,61 | 0,66 | 0,72 | 0,80 | 0,88 | 0,98 | 1,05 | 1,18 | 1,29 | 1,41 |
| 540  | 1,27 | 1,14 | 1,01 | 0,90 | 0,79 | 0,70 | 0,62 | 0,58 | 0,56 | 0,57 | 0,58 | 0,62 | 0,67 | 0,76 | 0,83 | 0,92 | 1,01 | 1,09 | 1,23 |
| 560  | 1,52 | 1,34 | 1,23 | 1,09 | 1,00 | 0,84 | 0,73 | 0,67 | 0,56 | 0,55 | 0,54 | 0,55 | 0,58 | 0,63 | 0,70 | 0,78 | 0,86 | 0,96 | 1,06 |
| 580  | 1,73 | 1,59 | 1,46 | 1,28 | 1,16 | 1,02 | 0,88 | 0,79 | 0,68 | 0,61 | 0,54 | 0,55 | 0,54 | 0,57 | 0,60 | 0,67 | 0,74 | 0,83 | 0,90 |
| 600  | 1,92 | 1,81 | 1,66 | 1,53 | 1,38 | 1,22 | 1,09 | 0,95 | 0,84 | 0,74 | 0,65 | 0,59 | 0,53 | 0,54 | 0,55 | 0,58 | 0,63 | 0,71 | 0,78 |
| 620  | 2,14 | 2,00 | 1,88 | 1,74 | 1,59 | 1,45 | 1,32 | 1,13 | 1,01 | 0,90 | 0,78 | 0,69 | 0,62 | 0,57 | 0,53 | 0,56 | 0,57 | 0,62 | 0,68 |
| 640  | 2,24 | 2,16 | 2,10 | 1,96 | 1,82 | 1,67 | 1,53 | 1,38 | 1,23 | 1,05 | 0,95 | 0,86 | 0,73 | 0,67 | 0,61 | 0,57 | 0,55 | 0,58 | 0,61 |
| 660  | 2,31 | 2,23 | 2,21 | 2,12 | 2,04 | 1,89 | 1,75 | 1,60 | 1,45 | 1,31 | 1,17 | 1,00 | 0,91 | 0,81 | 0,72 | 0,67 | 0,60 | 0,60 | 0,58 |
| 680  | 2,34 | 2,34 | 2,30 | 2,20 | 2,16 | 2,07 | 1,97 | 1,83 | 1,68 | 1,52 | 1,37 | 1,24 | 1,10 | 0,95 | 0,87 | 0,78 | 0,72 | 0,65 | 0,62 |
| 700  | 2,32 | 2,34 | 2,34 | 2,32 | 2,28 | 2,20 | 2,12 | 1,99 | 1,91 | 1,76 | 1,60 | 1,45 | 1,30 | 1,18 | 1,05 | 0,91 | 0,84 | 0,77 | 0,72 |
| 720  | 2,25 | 2,30 | 2,32 | 2,35 | 2,33 | 2,29 | 2,23 | 2,14 | 2,05 | 1,93 | 1,85 | 1,68 | 1,53 | 1,38 | 1,24 | 1,14 | 1,02 | 0,90 | 0,84 |
| 740  | 2,16 | 2,22 | 2,29 | 2,31 | 2,34 | 2,33 | 2,29 | 2,25 | 2,18 | 2,08 | 1,98 | 1,86 | 1,77 | 1,61 | 1,46 | 1,33 | 1,21 | 1,09 | 1,00 |
| 760  | 2,03 | 2,13 | 2,19 | 2,25 | 2,28 | 2,31 | 2,32 | 2,30 | 2,26 | 2,20 | 2,11 | 2,11 | 1,91 | 1,80 | 1,70 | 1,55 | 1,40 | 1,28 | 1,16 |
| 780  | 1,89 | 1,99 | 2,08 | 2,15 | 2,20 | 2,26 | 2,29 | 2,30 | 2,29 | 2,24 | 2,21 | 2,14 | 2,06 | 1,94 | 1,85 | 1,73 | 1,63 | 1,51 | 1,38 |
| 800  | 1,78 | 1,84 | 1,94 | 2,03 | 2,11 | 2,16 | 2,21 | 2,25 | 2,27 | 2,27 | 2,24 | 2,21 | 2,15 | 2,07 | 1,99 | 1,89 | 1,79 | 1,66 | 1,60 |
| 820  | 1,58 | 1,69 | 1,82 | 1,88 | 1,97 | 2,05 | 2,11 | 2,16 | 2,21 | 2,23 | 2,24 | 2,22 | 2,20 | 2,15 | 2,09 | 2,02 | 1,92 | 1,83 | 1,73 |
| 840  | 1,43 | 1,53 | 1,62 | 1,75 | 1,84 | 1,90 | 1,97 | 2,05 | 2,10 | 2,16 | 2,18 | 2,19 | 2,20 | 2,18 | 2,15 | 2,09 | 2,03 | 1,96 | 1,87 |
| 860  | 1,31 | 1,39 | 1,47 | 1,55 | 1,66 | 1,76 | 1,87 | 1,91 | 1,99 | 2,04 | 2,10 | 2,14 | 2,15 | 2,16 | 2,16 | 2,12 | 2,09 | 2,05 | 1,98 |
| 880  | 1,18 | 1,23 | 1,34 | 1,43 | 1,50 | 1,59 | 1,69 | 1,78 | 1,86 | 1,92 | 1,98 | 2,02 | 2,07 | 2,09 | 2,10 | 2,12 | 2,11 | 2,08 | 2,04 |
| 900  | 1,11 | 1,20 | 1,26 | 1,30 | 1,40 | 1,45 | 1,52 | 1,61 | 1,68 | 1,77 | 1,87 | 1,90 | 1,96 | 1,99 | 2,04 | 2,06 | 2,08 | 2,06 | 2,06 |
| 920  | 1,00 | 1,05 | 1,12 | 1,19 | 1,25 | 1,29 | 1,39 | 1,47 | 1,54 | 1,61 | 1,67 | 1,76 | 1,85 | 1,88 | 1,92 | 1,96 | 2,00 | 2,02 | 2,02 |
| 940  | 0,91 | 0,99 | 1,03 | 1,09 | 1,15 | 1,22 | 1,28 | 1,31 | 1,41 | 1,47 | 1,53 | 1,61 | 1,68 | 1,75 | 1,84 | 1,84 | 1,88 | 1,92 | 1,96 |
| 960  | 0,89 | 0,94 | 0,96 | 1,03 | 1,07 | 1,14 | 1,17 | 1,24 | 1,28 | 1,32 | 1,40 | 1,47 | 1,51 | 1,57 | 1,63 | 1,71 | 1,79 | 1,80 | 1,85 |
| 980  | 0,89 | 0,92 | 0,95 | 0,98 | 0,99 | 1,06 | 1,10 | 1,14 | 1,19 | 1,24 | 1,29 | 1,30 | 1,39 | 1,43 | 1,49 | 1,54 | 1,61 | 1,68 | 1,76 |
| 1000 | 0,91 | 0,93 | 0,94 | 0,97 | 1,00 | 1,01 | 1,03 | 1,09 | 1,11 | 1,16 | 1,19 | 1,24 | 1,27 | 1,29 | 1,36 | 1,42 | 1,44 | 1,51 | 1,57 |
|      | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  | 860  | 870  | 880  | 890  |



TABLE XX.

Perturbations of the Radius Vector produced by *Mars*.

ARGUMENTS. B and D.

D

| B    | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,57 | 1,63 | 1,70 | 1,73 | 1,77 | 1,82 | 1,87 | 1,90 | 1,92 | 1,93 | 1,95 | 1,95 |
| 20   | 1,41 | 1,47 | 1,53 | 1,59 | 1,68 | 1,70 | 1,76 | 1,81 | 1,86 | 1,89 | 1,91 | 1,95 |
| 40   | 1,28 | 1,32 | 1,37 | 1,42 | 1,48 | 1,57 | 1,65 | 1,68 | 1,74 | 1,80 | 1,86 | 1,89 |
| 60   | 1,16 | 1,16 | 1,23 | 1,28 | 1,33 | 1,38 | 1,45 | 1,53 | 1,63 | 1,67 | 1,75 | 1,80 |
| 80   | 1,06 | 1,09 | 1,10 | 1,12 | 1,18 | 1,22 | 1,28 | 1,35 | 1,42 | 1,53 | 1,63 | 1,67 |
| 100  | 1,02 | 1,01 | 1,01 | 1,02 | 1,06 | 1,06 | 1,13 | 1,20 | 1,26 | 1,33 | 1,42 | 1,53 |
| 120  | 1,01 | 1,00 | 0,98 | 0,95 | 0,95 | 0,98 | 1,00 | 1,01 | 1,09 | 1,16 | 1,22 | 1,31 |
| 140  | 1,02 | 0,99 | 0,93 | 0,91 | 0,89 | 0,89 | 0,89 | 0,91 | 0,95 | 0,96 | 1,07 | 1,15 |
| 160  | 1,09 | 1,03 | 0,98 | 0,93 | 0,85 | 0,84 | 0,83 | 0,83 | 0,83 | 0,88 | 0,90 | 0,94 |
| 180  | 1,17 | 1,12 | 1,05 | 0,98 | 0,92 | 0,86 | 0,79 | 0,77 | 0,76 | 0,77 | 0,77 | 0,83 |
| 200  | 1,28 | 1,24 | 1,14 | 1,09 | 0,99 | 0,92 | 0,84 | 0,79 | 0,71 | 0,71 | 0,70 | 0,71 |
| 220  | 1,42 | 1,34 | 1,27 | 1,18 | 1,10 | 1,02 | 0,92 | 0,84 | 0,78 | 0,73 | 0,65 | 0,65 |
| 240  | 1,55 | 1,46 | 1,40 | 1,32 | 1,23 | 1,15 | 1,05 | 0,95 | 0,85 | 0,77 | 0,69 | 0,64 |
| 260  | 1,68 | 1,63 | 1,54 | 1,44 | 1,39 | 1,29 | 1,18 | 1,16 | 1,01 | 0,91 | 0,82 | 0,69 |
| 280  | 1,78 | 1,73 | 1,71 | 1,63 | 1,54 | 1,42 | 1,34 | 1,24 | 1,12 | 1,02 | 0,90 | 0,80 |
| 300  | 1,89 | 1,86 | 1,81 | 1,76 | 1,71 | 1,61 | 1,52 | 1,38 | 1,30 | 1,17 | 1,05 | 0,94 |
| 320  | 1,94 | 1,92 | 1,93 | 1,87 | 1,81 | 1,77 | 1,69 | 1,59 | 1,48 | 1,33 | 1,24 | 1,11 |
| 340  | 1,99 | 1,98 | 1,98 | 1,96 | 1,96 | 1,89 | 1,83 | 1,74 | 1,67 | 1,55 | 1,43 | 1,27 |
| 360  | 2,03 | 2,05 | 2,06 | 2,05 | 2,06 | 2,01 | 1,99 | 1,92 | 1,83 | 1,73 | 1,63 | 1,49 |
| 380  | 2,02 | 2,04 | 2,06 | 2,07 | 2,08 | 2,06 | 2,02 | 1,99 | 1,96 | 1,88 | 1,78 | 1,66 |
| 400  | 2,00 | 2,03 | 2,07 | 2,07 | 2,09 | 2,10 | 2,10 | 2,06 | 2,04 | 1,98 | 1,94 | 1,85 |
| 420  | 1,95 | 1,99 | 2,04 | 2,07 | 2,10 | 2,11 | 2,14 | 2,13 | 2,11 | 2,07 | 2,04 | 1,96 |
| 440  | 1,88 | 1,93 | 2,00 | 2,04 | 2,08 | 2,11 | 2,12 | 2,14 | 2,15 | 2,13 | 2,10 | 2,06 |
| 460  | 1,78 | 1,85 | 1,92 | 1,97 | 2,03 | 2,06 | 2,10 | 2,12 | 2,15 | 2,16 | 2,15 | 2,13 |
| 480  | 1,70 | 1,75 | 1,83 | 1,88 | 1,95 | 2,01 | 2,06 | 2,09 | 2,13 | 2,14 | 2,16 | 2,15 |
| 500  | 1,55 | 1,63 | 1,72 | 1,78 | 1,86 | 1,92 | 1,99 | 2,03 | 2,07 | 2,10 | 2,13 | 2,15 |
| 520  | 1,41 | 1,48 | 1,58 | 1,66 | 1,77 | 1,81 | 1,89 | 1,93 | 2,00 | 2,04 | 2,08 | 2,11 |
| 540  | 1,23 | 1,35 | 1,45 | 1,53 | 1,62 | 1,70 | 1,80 | 1,85 | 1,91 | 1,96 | 2,01 | 2,04 |
| 560  | 1,06 | 1,14 | 1,27 | 1,39 | 1,49 | 1,56 | 1,65 | 1,73 | 1,82 | 1,86 | 1,92 | 1,96 |
| 580  | 0,90 | 1,01 | 1,10 | 1,19 | 1,32 | 1,41 | 1,53 | 1,60 | 1,67 | 1,75 | 1,84 | 1,86 |
| 600  | 0,78 | 0,87 | 0,97 | 1,06 | 1,17 | 1,24 | 1,37 | 1,45 | 1,57 | 1,62 | 1,70 | 1,77 |
| 620  | 0,68 | 0,77 | 0,83 | 0,93 | 1,01 | 1,12 | 1,21 | 1,29 | 1,40 | 1,49 | 1,58 | 1,63 |
| 640  | 0,61 | 0,67 | 0,73 | 0,81 | 0,89 | 0,99 | 1,07 | 1,16 | 1,25 | 1,32 | 1,43 | 1,51 |
| 660  | 0,58 | 0,63 | 0,66 | 0,73 | 0,79 | 0,88 | 0,96 | 1,05 | 1,13 | 1,21 | 1,30 | 1,35 |
| 680  | 0,62 | 0,62 | 0,61 | 0,68 | 0,72 | 0,78 | 0,85 | 0,93 | 1,02 | 1,11 | 1,17 | 1,25 |
| 700  | 0,72 | 0,68 | 0,66 | 0,68 | 0,67 | 0,74 | 0,78 | 0,85 | 0,91 | 1,00 | 1,06 | 1,15 |
| 720  | 0,84 | 0,79 | 0,73 | 0,71 | 0,71 | 0,72 | 0,73 | 0,80 | 0,85 | 0,91 | 0,99 | 1,05 |
| 740  | 1,00 | 0,88 | 0,84 | 0,80 | 0,75 | 0,78 | 0,76 | 0,79 | 0,79 | 0,87 | 0,91 | 0,95 |
| 760  | 1,16 | 1,08 | 1,00 | 0,88 | 0,88 | 0,83 | 0,81 | 0,83 | 0,82 | 0,84 | 0,86 | 0,92 |
| 780  | 1,38 | 1,26 | 1,15 | 1,08 | 1,00 | 0,92 | 0,90 | 0,88 | 0,88 | 0,89 | 0,89 | 0,92 |
| 800  | 1,60 | 1,46 | 1,34 | 1,23 | 1,15 | 1,08 | 1,02 | 0,96 | 0,94 | 0,94 | 0,93 | 0,94 |
| 820  | 1,73 | 1,62 | 1,56 | 1,43 | 1,33 | 1,24 | 1,15 | 1,13 | 1,06 | 1,01 | 1,00 | 1,00 |
| 840  | 1,87 | 1,79 | 1,69 | 1,61 | 1,53 | 1,43 | 1,33 | 1,25 | 1,19 | 1,14 | 1,12 | 1,05 |
| 860  | 1,98 | 1,90 | 1,83 | 1,74 | 1,67 | 1,57 | 1,53 | 1,43 | 1,33 | 1,28 | 1,21 | 1,19 |
| 880  | 2,04 | 1,99 | 1,93 | 1,86 | 1,81 | 1,72 | 1,65 | 1,56 | 1,53 | 1,44 | 1,36 | 1,31 |
| 900  | 2,06 | 2,03 | 2,00 | 1,96 | 1,89 | 1,85 | 1,78 | 1,71 | 1,65 | 1,59 | 1,55 | 1,47 |
| 920  | 2,02 | 2,04 | 2,02 | 1,99 | 1,96 | 1,92 | 1,88 | 1,83 | 1,77 | 1,71 | 1,65 | 1,60 |
| 940  | 1,96 | 1,98 | 1,99 | 1,99 | 1,98 | 1,96 | 1,94 | 1,90 | 1,88 | 1,82 | 1,77 | 1,72 |
| 960  | 1,85 | 1,88 | 1,92 | 1,94 | 1,96 | 1,97 | 1,96 | 1,94 | 1,93 | 1,91 | 1,87 | 1,84 |
| 980  | 1,76 | 1,76 | 1,82 | 1,86 | 1,89 | 1,92 | 1,93 | 1,94 | 1,95 | 1,94 | 1,93 | 1,90 |
| 1000 | 1,57 | 1,63 | 1,70 | 1,73 | 1,77 | 1,82 | 1,87 | 1,90 | 1,92 | 1,93 | 1,95 | 1,95 |
|      | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |

TABLE XXI.

Pert. of the R.V. prod. by *Jupiter*.

ARGUMENTS. B and E.

E

| 0    | 10   | 20   | 30   | 40   | 50   | 60   |
|------|------|------|------|------|------|------|
| 3,94 | 3,91 | 3,85 | 3,81 | 3,78 | 3,73 | 3,71 |
| 3,98 | 3,94 | 3,91 | 3,86 | 3,83 | 3,78 | 3,74 |
| 4,04 | 3,99 | 3,95 | 3,91 | 3,86 | 3,83 | 3,80 |
| 4,09 | 4,04 | 3,99 | 3,95 | 3,93 | 3,87 | 3,83 |
| 4,12 | 4,09 | 4,03 | 3,99 | 3,95 | 3,93 | 3,89 |
| 4,13 | 4,11 | 4,08 | 4,03 | 4,00 | 3,96 | 3,93 |
| 4,12 | 4,11 | 4,09 | 4,06 | 4,03 | 3,99 | 3,96 |
| 4,07 | 4,09 | 4,09 | 4,05 | 4,05 | 4,02 | 3,99 |
| 3,98 | 4,02 | 4,03 | 4,05 | 4,04 | 4,03 | 4,01 |
| 3,86 | 3,92 | 3,95 | 3,98 | 4,00 | 4,00 | 4,00 |
| 3,70 | 3,77 | 3,83 | 3,89 | 3,93 | 3,96 | 3,96 |
| 3,49 | 3,59 | 3,67 | 3,74 | 3,80 | 3,86 | 3,90 |
| 3,24 | 3,38 | 3,48 | 3,58 | 3,66 | 3,72 | 3,77 |
| 2,97 | 3,12 | 3,25 | 3,36 | 3,47 | 3,56 | 3,64 |
| 2,69 | 2,84 | 2,98 | 3,12 | 3,26 | 3,37 | 3,46 |
| 2,41 | 2,57 | 2,71 | 2,85 | 2,99 | 3,13 | 3,25 |
| 2,12 | 2,28 | 2,44 | 2,60 | 2,73 | 2,86 | 2,99 |
| 1,85 | 2,00 | 2,15 | 2,32 | 2,48 | 2,62 | 2,76 |
| 1,58 | 1,71 | 1,88 | 2,03 | 2,20 | 2,35 | 2,50 |
| 1,33 | 1,48 | 1,63 | 1,78 | 1,93 | 2,08 | 2,23 |
| 1,11 | 1,25 | 1,38 | 1,54 | 1,68 | 1,82 | 1,97 |
| 0,92 | 1,05 | 1,16 | 1,29 | 1,43 | 1,59 | 1,73 |
| 0,77 | 0,87 | 0,97 | 1,10 | 1,22 | 1,35 | 1,49 |
| 0,65 | 0,73 | 0,81 | 0,92 | 1,03 | 1,16 | 1,28 |
| 0,58 | 0,63 | 0,69 | 0,78 | 0,87 | 0,98 | 1,09 |
| 0,54 | 0,57 | 0,61 | 0,67 | 0,75 | 0,83 | 0,93 |
| 0,53 | 0,54 | 0,57 | 0,61 | 0,67 | 0,72 | 0,80 |
| 0,58 | 0,56 | 0,56 | 0,57 | 0,61 | 0,66 | 0,72 |
| 0,65 | 0,62 | 0,59 | 0,58 | 0,60 | 0,62 | 0,66 |
| 0,76 | 0,71 | 0,65 | 0,63 | 0,61 | 0,62 | 0,65 |
| 0,90 | 0,84 | 0,76 | 0,71 | 0,68 | 0,66 | 0,65 |
| 1,08 | 0,98 | 0,90 | 0,83 | 0,77 | 0,73 | 0,70 |
| 1,28 | 1,18 | 1,07 | 0,96 | 0,90 | 0,85 | 0,79 |
| 1,49 | 1,37 | 1,26 | 1,16 | 1,06 | 0,98 | 0,92 |
| 1,73 | 1,60 | 1,46 | 1,35 | 1,25 | 1,15 | 1,06 |
| 1,96 | 1,83 | 1,70 | 1,57 | 1,46 | 1,35 | 1,25 |
| 2,20 | 2,08 | 1,93 | 1,80 | 1,67 | 1,56 | 1,45 |
| 2,42 | 2,30 | 2,17 | 2,05 | 1,92 | 1,78 | 1,66 |
| 2,68 | 2,54 | 2,40 | 2,26 | 2,14 | 2,03 | 1,90 |
| 2,90 | 2,78 | 2,64 | 2,51 | 2,39 | 2,25 | 2,13 |
| 3,09 | 2,88 | 2,86 | 2,74 | 2,62 | 2,50 | 2,36 |
| 3,25 | 3,16 | 3,06 | 2,95 | 2,83 | 2,72 | 2,60 |
| 3,41 | 3,32 | 3,22 | 3,14 | 3,04 | 2,92 | 2,83 |
| 3,52 | 3,46 | 3,37 | 3,29 | 3,21 | 3,11 | 3,01 |
| 3,61 | 3,56 | 3,49 | 3,43 | 3,36 | 3,28 | 3,18 |
| 3,68 | 3,64 | 3,59 | 3,54 | 3,47 | 3,41 | 3,34 |
| 3,75 | 3,70 | 3,65 | 3,61 | 3,56 | 3,53 | 3,46 |
| 3,80 | 3,76 | 3,71 | 3,67 | 3,64 | 3,59 | 3,55 |
| 3,84 | 3,80 | 3,76 | 3,72 | 3,69 | 3,66 | 3,62 |
| 3,91 | 3,85 | 3,80 | 3,77 | 3,73 | 3,70 | 3,68 |
| 3,94 | 3,91 | 3,85 | 3,81 | 3,78 | 3,73 | 3,71 |
| 0    | 10   | 20   | 30   | 40   | 50   | 60   |



TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 3,71 | 3,68 | 3,65 | 3,61 | 3,58 | 3,54 | 3,50 | 3,44 | 3,39 | 3,34 | 3,26 | 3,19 | 3,09 | 3,00 | 2,90 | 2,81 | 2,71 | 2,59 | 2,48 |
| 20   | 3,74 | 3,71 | 3,70 | 3,66 | 3,62 | 3,60 | 3,57 | 3,52 | 3,48 | 3,45 | 3,39 | 3,33 | 3,26 | 3,18 | 3,09 | 3,00 | 2,91 | 2,80 | 2,70 |
| 40   | 3,80 | 3,75 | 3,72 | 3,70 | 3,67 | 3,64 | 3,62 | 3,58 | 3,55 | 3,51 | 3,48 | 3,44 | 3,38 | 3,33 | 3,25 | 3,18 | 3,09 | 3,00 | 2,91 |
| 60   | 3,83 | 3,78 | 3,75 | 3,72 | 3,70 | 3,68 | 3,66 | 3,62 | 3,62 | 3,58 | 3,54 | 3,51 | 3,47 | 3,43 | 3,37 | 3,32 | 3,26 | 3,17 | 3,09 |
| 80   | 3,89 | 3,83 | 3,80 | 3,75 | 3,72 | 3,70 | 3,68 | 3,65 | 3,64 | 3,63 | 3,60 | 3,56 | 3,54 | 3,52 | 3,48 | 3,43 | 3,38 | 3,32 | 3,26 |
| 100  | 3,93 | 3,87 | 3,84 | 3,81 | 3,76 | 3,73 | 3,72 | 3,68 | 3,66 | 3,64 | 3,62 | 3,61 | 3,58 | 3,57 | 3,55 | 3,51 | 3,49 | 3,44 | 3,41 |
| 120  | 3,96 | 3,92 | 3,87 | 3,84 | 3,79 | 3,75 | 3,73 | 3,71 | 3,69 | 3,67 | 3,65 | 3,63 | 3,62 | 3,59 | 3,58 | 3,57 | 3,55 | 3,52 | 3,49 |
| 140  | 3,99 | 3,94 | 3,92 | 3,87 | 3,83 | 3,79 | 3,76 | 3,72 | 3,70 | 3,69 | 3,67 | 3,66 | 3,64 | 3,63 | 3,61 | 3,60 | 3,60 | 3,57 | 3,56 |
| 160  | 4,01 | 3,96 | 3,94 | 3,92 | 3,87 | 3,82 | 3,79 | 3,75 | 3,73 | 3,71 | 3,68 | 3,67 | 3,65 | 3,64 | 3,62 | 3,63 | 3,63 | 3,61 | 3,61 |
| 180  | 4,00 | 3,97 | 3,95 | 3,92 | 3,90 | 3,85 | 3,82 | 3,78 | 3,74 | 3,72 | 3,70 | 3,68 | 3,66 | 3,65 | 3,64 | 3,63 | 3,63 | 3,62 | 3,63 |
| 200  | 3,96 | 3,94 | 3,94 | 3,92 | 3,89 | 3,88 | 3,84 | 3,80 | 3,78 | 3,73 | 3,70 | 3,69 | 3,67 | 3,65 | 3,64 | 3,64 | 3,64 | 3,62 | 3,63 |
| 220  | 3,90 | 3,91 | 3,91 | 3,91 | 3,88 | 3,86 | 3,86 | 3,81 | 3,79 | 3,76 | 3,72 | 3,70 | 3,68 | 3,66 | 3,64 | 3,64 | 3,64 | 3,62 | 3,62 |
| 240  | 3,77 | 3,81 | 3,84 | 3,86 | 3,85 | 3,85 | 3,84 | 3,82 | 3,79 | 3,76 | 3,73 | 3,70 | 3,68 | 3,66 | 3,64 | 3,63 | 3,64 | 3,62 | 3,62 |
| 260  | 3,64 | 3,68 | 3,73 | 3,77 | 3,79 | 3,78 | 3,79 | 3,79 | 3,79 | 3,76 | 3,73 | 3,71 | 3,68 | 3,65 | 3,64 | 3,63 | 3,61 | 3,61 | 3,62 |
| 280  | 3,46 | 3,53 | 3,59 | 3,65 | 3,68 | 3,72 | 3,73 | 3,73 | 3,73 | 3,74 | 3,71 | 3,70 | 3,68 | 3,65 | 3,63 | 3,62 | 3,61 | 3,59 | 3,59 |
| 300  | 3,25 | 3,34 | 3,44 | 3,50 | 3,55 | 3,59 | 3,63 | 3,65 | 3,67 | 3,68 | 3,68 | 3,66 | 3,64 | 3,63 | 3,60 | 3,60 | 3,60 | 3,58 | 3,58 |
| 320  | 2,99 | 3,11 | 3,22 | 3,32 | 3,39 | 3,45 | 3,51 | 3,54 | 3,57 | 3,58 | 3,60 | 3,63 | 3,60 | 3,60 | 3,58 | 3,56 | 3,56 | 3,55 | 3,55 |
| 340  | 2,76 | 2,86 | 2,99 | 3,10 | 3,19 | 3,28 | 3,35 | 3,40 | 3,45 | 3,48 | 3,50 | 3,53 | 3,55 | 3,54 | 3,53 | 3,54 | 3,53 | 3,51 | 3,52 |
| 360  | 2,50 | 2,64 | 2,75 | 2,86 | 2,97 | 3,08 | 3,17 | 3,23 | 3,29 | 3,35 | 3,38 | 3,41 | 3,43 | 3,47 | 3,47 | 3,47 | 3,47 | 3,46 | 3,46 |
| 380  | 2,23 | 2,36 | 2,51 | 2,64 | 2,74 | 2,85 | 2,96 | 3,04 | 3,13 | 3,19 | 3,25 | 3,29 | 3,33 | 3,34 | 3,38 | 3,40 | 3,41 | 3,41 | 3,40 |
| 400  | 1,97 | 2,12 | 2,26 | 2,39 | 2,51 | 2,63 | 2,74 | 2,82 | 2,91 | 3,01 | 3,07 | 3,13 | 3,18 | 3,22 | 3,24 | 3,28 | 3,29 | 3,31 | 3,33 |
| 420  | 1,73 | 1,86 | 1,91 | 2,14 | 2,27 | 2,40 | 2,52 | 2,62 | 2,71 | 2,79 | 2,88 | 2,95 | 3,01 | 3,07 | 3,11 | 3,14 | 3,20 | 3,20 | 3,22 |
| 440  | 1,49 | 1,62 | 1,76 | 1,91 | 2,03 | 2,16 | 2,28 | 2,39 | 2,50 | 2,61 | 2,68 | 2,75 | 2,82 | 2,89 | 2,92 | 2,97 | 3,00 | 3,08 | 3,11 |
| 460  | 1,28 | 1,40 | 1,53 | 1,67 | 1,80 | 1,93 | 2,06 | 2,17 | 2,29 | 2,39 | 2,49 | 2,58 | 2,64 | 2,71 | 2,77 | 2,83 | 2,89 | 2,93 | 2,99 |
| 480  | 1,09 | 1,21 | 1,32 | 1,45 | 1,57 | 1,71 | 1,84 | 1,95 | 2,07 | 2,18 | 2,27 | 2,38 | 2,46 | 2,55 | 2,60 | 2,65 | 2,71 | 2,77 | 2,83 |
| 500  | 0,93 | 1,03 | 1,14 | 1,26 | 1,37 | 1,49 | 1,62 | 1,74 | 1,86 | 1,97 | 2,07 | 2,17 | 2,26 | 2,34 | 2,42 | 2,50 | 2,56 | 2,59 | 2,65 |
| 520  | 0,80 | 0,89 | 0,99 | 1,09 | 1,18 | 1,31 | 1,42 | 1,53 | 1,65 | 1,78 | 1,88 | 1,98 | 2,07 | 2,16 | 2,24 | 2,32 | 2,39 | 2,45 | 2,49 |
| 540  | 0,72 | 0,78 | 0,86 | 0,95 | 1,04 | 1,14 | 1,24 | 1,35 | 1,46 | 1,57 | 1,68 | 1,79 | 1,89 | 1,98 | 2,06 | 2,14 | 2,22 | 2,28 | 2,35 |
| 560  | 0,66 | 0,69 | 0,76 | 0,83 | 0,91 | 1,01 | 1,10 | 1,18 | 1,29 | 1,41 | 1,50 | 1,60 | 1,69 | 1,80 | 1,88 | 1,97 | 2,05 | 2,11 | 2,18 |
| 580  | 0,65 | 0,66 | 0,71 | 0,75 | 0,81 | 0,88 | 0,95 | 1,05 | 1,14 | 1,25 | 1,34 | 1,44 | 1,53 | 1,63 | 1,72 | 1,80 | 1,89 | 1,95 | 2,03 |
| 600  | 0,65 | 0,65 | 0,68 | 0,72 | 0,76 | 0,81 | 0,88 | 0,94 | 1,02 | 1,10 | 1,18 | 1,29 | 1,37 | 1,48 | 1,56 | 1,64 | 1,71 | 1,81 | 1,93 |
| 620  | 0,70 | 0,68 | 0,68 | 0,70 | 0,72 | 0,75 | 0,81 | 0,86 | 0,94 | 1,00 | 1,07 | 1,15 | 1,24 | 1,32 | 1,40 | 1,50 | 1,58 | 1,65 | 1,73 |
| 640  | 0,79 | 0,74 | 0,72 | 0,72 | 0,72 | 0,73 | 0,77 | 0,80 | 0,85 | 0,92 | 0,99 | 1,05 | 1,12 | 1,21 | 1,28 | 1,36 | 1,44 | 1,52 | 1,59 |
| 660  | 0,92 | 0,85 | 0,80 | 0,78 | 0,76 | 0,75 | 0,76 | 0,78 | 0,82 | 0,86 | 0,91 | 0,98 | 1,02 | 1,09 | 1,16 | 1,25 | 1,33 | 1,39 | 1,47 |
| 680  | 1,06 | 0,98 | 0,92 | 0,87 | 0,82 | 0,80 | 0,79 | 0,79 | 0,80 | 0,82 | 0,86 | 0,91 | 0,97 | 1,01 | 1,07 | 1,14 | 1,21 | 1,28 | 1,35 |
| 700  | 1,25 | 1,13 | 1,06 | 0,99 | 0,92 | 0,89 | 0,85 | 0,83 | 0,83 | 0,83 | 0,84 | 0,87 | 0,91 | 0,96 | 1,00 | 1,06 | 1,13 | 1,18 | 1,25 |
| 720  | 1,45 | 1,34 | 1,24 | 1,16 | 1,06 | 0,99 | 0,95 | 0,91 | 0,88 | 0,87 | 0,86 | 0,88 | 0,89 | 0,92 | 0,96 | 1,00 | 1,06 | 1,10 | 1,16 |
| 740  | 1,66 | 1,53 | 1,43 | 1,33 | 1,24 | 1,16 | 1,08 | 1,01 | 0,96 | 0,94 | 0,90 | 0,90 | 0,89 | 0,91 | 0,93 | 0,97 | 1,01 | 1,04 | 1,10 |
| 760  | 1,90 | 1,76 | 1,64 | 1,53 | 1,42 | 1,31 | 1,24 | 1,16 | 1,09 | 1,04 | 0,99 | 0,97 | 0,93 | 0,93 | 0,93 | 0,95 | 0,98 | 1,00 | 1,05 |
| 780  | 2,13 | 2,00 | 1,87 | 1,75 | 1,63 | 1,52 | 1,42 | 1,32 | 1,24 | 1,17 | 1,08 | 1,06 | 1,02 | 1,00 | 0,97 | 0,98 | 0,98 | 1,00 | 1,01 |
| 800  | 2,36 | 2,22 | 2,11 | 1,99 | 1,85 | 1,73 | 1,62 | 1,51 | 1,42 | 1,33 | 1,25 | 1,18 | 1,11 | 1,07 | 1,08 | 1,02 | 1,01 | 1,01 | 1,03 |
| 820  | 2,60 | 2,46 | 2,33 | 2,20 | 2,28 | 1,96 | 1,85 | 1,72 | 1,62 | 1,50 | 1,41 | 1,33 | 1,26 | 1,20 | 1,13 | 1,09 | 1,07 | 1,05 | 1,04 |
| 840  | 2,83 | 2,70 | 2,58 | 2,45 | 2,30 | 2,18 | 2,06 | 1,95 | 1,83 | 1,72 | 1,61 | 1,51 | 1,42 | 1,34 | 1,27 | 1,22 | 1,17 | 1,12 | 1,10 |
| 860  | 3,01 | 2,91 | 2,80 | 2,68 | 2,56 | 2,43 | 2,30 | 2,15 | 2,04 | 1,94 | 1,82 | 1,71 | 1,60 | 1,51 | 1,46 | 1,35 | 1,29 | 1,23 | 1,18 |
| 880  | 3,18 | 3,07 | 3,00 | 2,89 | 2,76 | 2,65 | 2,52 | 2,38 | 2,25 | 2,12 | 2,00 | 1,90 | 1,76 | 1,67 | 1,57 | 1,49 | 1,42 | 1,34 | 1,30 |
| 900  | 3,34 | 3,26 | 3,16 | 3,07 | 2,97 | 2,86 | 2,77 | 2,64 | 2,52 | 2,40 | 2,26 | 2,13 | 2,03 | 1,93 | 1,80 | 1,70 | 1,61 | 1,52 | 1,45 |
| 920  | 3,46 | 3,39 | 3,32 | 3,23 | 3,14 | 3,06 | 2,96 | 2,85 | 2,74 | 2,63 | 2,51 | 2,38 | 2,24 | 2,13 | 2,02 | 1,91 | 1,82 | 1,71 | 1,62 |
| 940  | 3,55 | 3,49 | 3,43 | 3,38 | 3,29 | 3,22 | 3,13 | 3,03 | 2,94 | 2,84 | 2,73 | 2,61 | 2,49 | 2,36 | 2,24 | 2,12 | 2,02 | 1,91 | 1,82 |
| 960  | 3,62 | 3,59 | 3,53 | 3,48 | 3,41 | 3,35 | 3,29 | 3,21 | 3,12 | 3,03 | 2,93 | 2,83 | 2,71 | 2,61 | 2,48 | 2,36 | 2,24 | 2,11 | 2,02 |
| 980  | 3,68 | 3,64 | 3,59 | 3,56 | 3,51 | 3,46 | 3,40 | 3,34 | 3,28 | 3,20 | 3,10 | 3,02 | 2,92 | 2,82 | 2,71 | 2,59 | 2,48 | 2,36 | 2,24 |
| 1000 | 3,71 | 3,68 | 3,65 | 3,61 | 3,58 | 3,54 | 3,50 | 3,44 | 3,39 | 3,34 | 3,26 | 3,19 | 3,09 | 3,00 | 2,90 | 2,81 | 2,71 | 2,59 | 2,48 |
| 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  | 180  | 190  | 200  | 210  | 220  | 230  | 240  |      |



TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 2,48 | 2,36 | 2,24 | 2,12 | 2,04 | 1,94 | 1,84 | 1,75 | 1,68 | 1,60 | 1,54 | 1,49 | 1,45 | 1,40 | 1,37 | 1,35 | 1,33 |
| 20   | 2,70 | 2,60 | 2,48 | 2,37 | 2,25 | 2,13 | 2,04 | 1,96 | 1,87 | 1,77 | 1,70 | 1,62 | 1,57 | 1,51 | 1,47 | 1,44 | 1,40 |
| 40   | 2,91 | 2,81 | 2,70 | 2,59 | 2,49 | 2,37 | 2,26 | 2,16 | 2,06 | 1,96 | 1,87 | 1,80 | 1,72 | 1,64 | 1,58 | 1,53 | 1,50 |
| 60   | 3,09 | 3,00 | 2,91 | 2,81 | 2,71 | 2,60 | 2,50 | 2,37 | 2,27 | 2,16 | 2,07 | 1,99 | 1,90 | 1,80 | 1,73 | 1,67 | 1,62 |
| 80   | 3,26 | 3,19 | 3,09 | 3,01 | 2,92 | 2,81 | 2,72 | 2,62 | 2,51 | 2,39 | 2,28 | 2,17 | 2,09 | 2,01 | 1,92 | 1,83 | 1,76 |
| 100  | 3,41 | 3,33 | 3,26 | 3,19 | 3,11 | 3,01 | 2,92 | 2,83 | 2,74 | 2,62 | 2,52 | 2,41 | 2,30 | 2,18 | 2,10 | 2,02 | 1,94 |
| 120  | 3,49 | 3,45 | 3,39 | 3,34 | 3,28 | 3,19 | 3,11 | 3,02 | 2,94 | 2,84 | 2,75 | 2,63 | 2,54 | 2,42 | 2,31 | 2,21 | 2,12 |
| 140  | 3,56 | 3,53 | 3,50 | 3,46 | 3,42 | 3,35 | 3,29 | 3,22 | 3,13 | 3,03 | 2,95 | 2,86 | 2,76 | 2,65 | 2,55 | 2,44 | 2,34 |
| 160  | 3,61 | 3,59 | 3,57 | 3,54 | 3,51 | 3,47 | 3,42 | 3,38 | 3,30 | 3,22 | 3,14 | 3,06 | 2,99 | 2,86 | 2,77 | 2,67 | 2,57 |
| 180  | 3,63 | 3,63 | 3,62 | 3,60 | 3,59 | 3,55 | 3,53 | 3,49 | 3,44 | 3,38 | 3,32 | 3,25 | 3,17 | 3,07 | 2,99 | 2,88 | 2,80 |
| 200  | 3,63 | 3,64 | 3,63 | 3,64 | 3,64 | 3,62 | 3,61 | 3,58 | 3,56 | 3,51 | 3,46 | 3,40 | 3,34 | 3,26 | 3,18 | 3,10 | 3,00 |
| 220  | 3,62 | 3,64 | 3,64 | 3,64 | 3,66 | 3,65 | 3,65 | 3,64 | 3,63 | 3,60 | 3,58 | 3,54 | 3,49 | 3,42 | 3,36 | 3,28 | 3,20 |
| 240  | 3,62 | 3,62 | 3,63 | 3,64 | 3,65 | 3,66 | 3,67 | 3,67 | 3,67 | 3,66 | 3,64 | 3,62 | 3,59 | 3,55 | 3,51 | 3,45 | 3,39 |
| 260  | 3,62 | 3,62 | 3,61 | 3,63 | 3,65 | 3,65 | 3,67 | 3,68 | 3,70 | 3,69 | 3,70 | 3,68 | 3,68 | 3,65 | 3,61 | 3,58 | 3,53 |
| 280  | 3,59 | 3,60 | 3,60 | 3,60 | 3,62 | 3,64 | 3,66 | 3,67 | 3,69 | 3,70 | 3,72 | 3,72 | 3,72 | 3,71 | 3,70 | 3,67 | 3,65 |
| 300  | 3,58 | 3,58 | 3,57 | 3,58 | 3,59 | 3,60 | 3,63 | 3,65 | 3,68 | 3,69 | 3,71 | 3,72 | 3,74 | 3,74 | 3,75 | 3,73 | 3,72 |
| 320  | 3,55 | 3,55 | 3,55 | 3,56 | 3,57 | 3,57 | 3,59 | 3,62 | 3,64 | 3,66 | 3,69 | 3,72 | 3,74 | 3,75 | 3,77 | 3,77 | 3,78 |
| 340  | 3,52 | 3,52 | 3,51 | 3,52 | 3,53 | 3,54 | 3,55 | 3,58 | 3,61 | 3,63 | 3,65 | 3,68 | 3,72 | 3,73 | 3,76 | 3,78 | 3,80 |
| 360  | 3,46 | 3,48 | 3,47 | 3,47 | 3,49 | 3,49 | 3,51 | 3,52 | 3,55 | 3,58 | 3,62 | 3,65 | 3,68 | 3,71 | 3,73 | 3,76 | 3,78 |
| 380  | 3,40 | 3,41 | 3,42 | 3,42 | 3,43 | 3,44 | 3,46 | 3,48 | 3,50 | 3,52 | 3,55 | 3,59 | 3,63 | 3,66 | 3,70 | 3,74 | 3,78 |
| 400  | 3,33 | 3,34 | 3,34 | 3,36 | 3,38 | 3,38 | 3,40 | 3,42 | 3,44 | 3,46 | 3,50 | 3,53 | 3,56 | 3,60 | 3,64 | 3,68 | 3,72 |
| 420  | 3,22 | 3,24 | 3,25 | 3,27 | 3,29 | 3,31 | 3,32 | 3,34 | 3,37 | 3,39 | 3,42 | 3,46 | 3,50 | 3,54 | 3,58 | 3,62 | 3,67 |
| 440  | 3,11 | 3,13 | 3,15 | 3,17 | 3,19 | 3,21 | 3,23 | 3,26 | 3,30 | 3,33 | 3,37 | 3,40 | 3,46 | 3,49 | 3,54 | 3,58 | 3,62 |
| 460  | 2,99 | 3,01 | 3,03 | 3,06 | 3,08 | 3,10 | 3,15 | 3,17 | 3,19 | 3,22 | 3,25 | 3,29 | 3,32 | 3,37 | 3,42 | 3,46 | 3,52 |
| 480  | 2,83 | 2,88 | 2,90 | 2,93 | 2,96 | 2,97 | 3,00 | 3,05 | 3,09 | 3,11 | 3,15 | 3,19 | 3,23 | 3,25 | 3,31 | 3,37 | 3,42 |
| 500  | 2,65 | 2,71 | 2,77 | 2,79 | 2,84 | 2,86 | 2,88 | 2,91 | 2,96 | 2,99 | 3,03 | 3,08 | 3,12 | 3,15 | 3,20 | 3,26 | 3,32 |
| 520  | 2,49 | 2,54 | 2,59 | 2,66 | 2,69 | 2,72 | 2,76 | 2,79 | 2,83 | 2,86 | 2,90 | 2,94 | 3,00 | 3,04 | 3,08 | 3,14 | 3,20 |
| 540  | 2,35 | 2,40 | 2,43 | 2,47 | 2,53 | 2,57 | 2,62 | 2,66 | 2,69 | 2,71 | 2,76 | 2,81 | 2,85 | 2,90 | 2,95 | 3,00 | 3,06 |
| 560  | 2,18 | 2,24 | 2,29 | 2,34 | 2,38 | 2,42 | 2,46 | 2,49 | 2,55 | 2,58 | 2,62 | 2,67 | 2,71 | 2,74 | 2,80 | 2,87 | 2,93 |
| 580  | 2,03 | 2,09 | 2,14 | 2,19 | 2,24 | 2,28 | 2,33 | 2,35 | 2,39 | 2,43 | 2,47 | 2,51 | 2,57 | 2,61 | 2,66 | 2,71 | 2,77 |
| 600  | 1,93 | 1,94 | 1,99 | 2,05 | 2,10 | 2,13 | 2,18 | 2,24 | 2,26 | 2,27 | 2,32 | 2,36 | 2,41 | 2,45 | 2,50 | 2,55 | 2,61 |
| 620  | 1,73 | 1,80 | 1,86 | 1,91 | 1,97 | 1,99 | 2,04 | 2,08 | 2,14 | 2,16 | 2,19 | 2,20 | 2,25 | 2,29 | 2,35 | 2,45 | 2,55 |
| 640  | 1,59 | 1,66 | 1,72 | 1,79 | 1,83 | 1,88 | 1,92 | 1,96 | 2,00 | 2,03 | 2,06 | 2,10 | 2,12 | 2,16 | 2,21 | 2,27 | 2,32 |
| 660  | 1,47 | 1,52 | 1,60 | 1,65 | 1,71 | 1,76 | 1,81 | 1,85 | 1,89 | 1,90 | 1,95 | 1,97 | 2,01 | 2,02 | 2,04 | 2,09 | 2,13 |
| 680  | 1,35 | 1,41 | 1,48 | 1,55 | 1,60 | 1,64 | 1,69 | 1,73 | 1,77 | 1,80 | 1,83 | 1,87 | 1,89 | 1,91 | 1,94 | 1,95 | 1,99 |
| 700  | 1,25 | 1,32 | 1,37 | 1,44 | 1,50 | 1,55 | 1,60 | 1,63 | 1,67 | 1,70 | 1,73 | 1,75 | 1,79 | 1,81 | 1,82 | 1,85 | 1,87 |
| 720  | 1,16 | 1,23 | 1,28 | 1,34 | 1,40 | 1,45 | 1,49 | 1,55 | 1,58 | 1,61 | 1,64 | 1,67 | 1,70 | 1,71 | 1,72 | 1,73 | 1,76 |
| 740  | 1,10 | 1,15 | 1,20 | 1,25 | 1,31 | 1,36 | 1,41 | 1,45 | 1,49 | 1,53 | 1,55 | 1,57 | 1,60 | 1,62 | 1,66 | 1,66 | 1,67 |
| 760  | 1,05 | 1,10 | 1,14 | 1,19 | 1,24 | 1,28 | 1,33 | 1,38 | 1,42 | 1,45 | 1,48 | 1,51 | 1,53 | 1,54 | 1,55 | 1,59 | 1,59 |
| 780  | 1,01 | 1,05 | 1,09 | 1,13 | 1,18 | 1,22 | 1,27 | 1,30 | 1,34 | 1,38 | 1,42 | 1,44 | 1,46 | 1,48 | 1,49 | 1,50 | 1,53 |
| 800  | 1,03 | 1,04 | 1,07 | 1,09 | 1,13 | 1,16 | 1,21 | 1,25 | 1,29 | 1,32 | 1,35 | 1,38 | 1,40 | 1,42 | 1,43 | 1,44 | 1,45 |
| 820  | 1,04 | 1,06 | 1,05 | 1,08 | 1,11 | 1,13 | 1,16 | 1,20 | 1,24 | 1,26 | 1,30 | 1,33 | 1,36 | 1,37 | 1,39 | 1,39 | 1,40 |
| 840  | 1,10 | 1,10 | 1,07 | 1,08 | 1,09 | 1,12 | 1,14 | 1,17 | 1,20 | 1,23 | 1,25 | 1,28 | 1,31 | 1,32 | 1,34 | 1,37 | 1,36 |
| 860  | 1,18 | 1,16 | 1,13 | 1,12 | 1,11 | 1,11 | 1,13 | 1,15 | 1,17 | 1,19 | 1,23 | 1,25 | 1,28 | 1,29 | 1,30 | 1,31 | 1,32 |
| 880  | 1,30 | 1,26 | 1,21 | 1,18 | 1,16 | 1,15 | 1,14 | 1,16 | 1,17 | 1,18 | 1,19 | 1,22 | 1,24 | 1,26 | 1,28 | 1,30 | 1,31 |
| 900  | 1,45 | 1,39 | 1,33 | 1,28 | 1,25 | 1,22 | 1,19 | 1,19 | 1,18 | 1,19 | 1,20 | 1,21 | 1,22 | 1,23 | 1,25 | 1,26 | 1,28 |
| 920  | 1,62 | 1,53 | 1,45 | 1,40 | 1,35 | 1,31 | 1,26 | 1,24 | 1,23 | 1,22 | 1,21 | 1,22 | 1,22 | 1,23 | 1,24 | 1,25 | 1,26 |
| 940  | 1,82 | 1,72 | 1,63 | 1,55 | 1,48 | 1,41 | 1,37 | 1,33 | 1,29 | 1,26 | 1,25 | 1,25 | 1,25 | 1,24 | 1,24 | 1,25 | 1,25 |
| 960  | 2,02 | 1,93 | 1,82 | 1,73 | 1,65 | 1,56 | 1,51 | 1,45 | 1,40 | 1,35 | 1,31 | 1,30 | 1,28 | 1,28 | 1,26 | 1,26 | 1,26 |
| 980  | 2,24 | 2,12 | 2,02 | 1,93 | 1,84 | 1,73 | 1,65 | 1,59 | 1,53 | 1,46 | 1,42 | 1,38 | 1,35 | 1,31 | 1,30 | 1,30 | 1,29 |
| 1000 | 2,48 | 2,36 | 2,24 | 2,12 | 2,04 | 1,94 | 1,84 | 1,75 | 1,68 | 1,60 | 1,54 | 1,49 | 1,45 | 1,40 | 1,37 | 1,35 | 1,33 |
|      | 240  | 250  | 260  | 270  | 280  | 290  | 300  | 310  | 320  | 330  | 340  | 350  | 360  | 370  | 380  | 390  | 400  |



TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  | 550  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,33 | 1,32 | 1,29 | 1,30 | 1,28 | 1,28 | 1,26 | 1,25 | 1,24 | 1,21 | 1,19 | 1,18 | 1,14 | 1,11 | 1,07 | 1,03 |
| 20   | 1,40 | 1,37 | 1,36 | 1,34 | 1,31 | 1,30 | 1,28 | 1,27 | 1,25 | 1,23 | 1,21 | 1,19 | 1,16 | 1,13 | 1,09 | 1,05 |
| 40   | 1,50 | 1,46 | 1,42 | 1,40 | 1,37 | 1,35 | 1,33 | 1,31 | 1,28 | 1,26 | 1,22 | 1,21 | 1,18 | 1,17 | 1,12 | 1,07 |
| 60   | 1,62 | 1,56 | 1,52 | 1,48 | 1,45 | 1,41 | 1,38 | 1,37 | 1,33 | 1,30 | 1,28 | 1,26 | 1,23 | 1,18 | 1,16 | 1,12 |
| 80   | 1,76 | 1,70 | 1,64 | 1,60 | 1,55 | 1,51 | 1,46 | 1,42 | 1,39 | 1,37 | 1,32 | 1,31 | 1,27 | 1,23 | 1,20 | 1,17 |
| 100  | 1,94 | 1,86 | 1,79 | 1,72 | 1,67 | 1,61 | 1,57 | 1,53 | 1,48 | 1,43 | 1,40 | 1,37 | 1,33 | 1,29 | 1,24 | 1,21 |
| 120  | 2,12 | 2,04 | 1,95 | 1,88 | 1,81 | 1,75 | 1,69 | 1,64 | 1,59 | 1,54 | 1,48 | 1,46 | 1,41 | 1,37 | 1,31 | 1,27 |
| 140  | 2,34 | 2,23 | 2,15 | 2,07 | 1,99 | 1,91 | 1,84 | 1,77 | 1,71 | 1,66 | 1,60 | 1,56 | 1,50 | 1,45 | 1,40 | 1,36 |
| 160  | 2,57 | 2,46 | 2,35 | 2,25 | 2,17 | 2,10 | 2,01 | 1,93 | 1,86 | 1,79 | 1,73 | 1,68 | 1,62 | 1,57 | 1,51 | 1,45 |
| 180  | 2,80 | 2,69 | 2,59 | 2,48 | 2,37 | 2,27 | 2,20 | 2,12 | 2,04 | 1,95 | 1,88 | 1,82 | 1,76 | 1,69 | 1,63 | 1,57 |
| 200  | 3,00 | 2,91 | 2,82 | 2,72 | 2,61 | 2,50 | 2,40 | 2,30 | 2,22 | 2,14 | 2,06 | 1,99 | 1,91 | 1,84 | 1,77 | 1,70 |
| 220  | 3,20 | 3,11 | 3,03 | 2,94 | 2,85 | 2,73 | 2,63 | 2,53 | 2,43 | 2,32 | 2,24 | 2,17 | 2,09 | 2,00 | 1,93 | 1,85 |
| 240  | 3,39 | 3,31 | 3,23 | 3,12 | 3,05 | 2,96 | 2,86 | 2,76 | 2,66 | 2,55 | 2,45 | 2,36 | 2,28 | 2,19 | 2,10 | 2,02 |
| 260  | 3,53 | 3,48 | 3,42 | 3,34 | 3,25 | 3,16 | 3,08 | 2,97 | 2,88 | 2,78 | 2,69 | 2,59 | 2,49 | 2,38 | 2,30 | 2,22 |
| 280  | 3,65 | 3,61 | 3,55 | 3,50 | 3,44 | 3,36 | 3,28 | 3,21 | 3,10 | 2,99 | 2,90 | 2,81 | 2,71 | 2,61 | 2,50 | 2,40 |
| 300  | 3,72 | 3,70 | 3,68 | 3,63 | 3,58 | 3,53 | 3,46 | 3,37 | 3,30 | 3,21 | 3,12 | 3,05 | 2,96 | 2,83 | 2,74 | 2,62 |
| 320  | 3,78 | 3,77 | 3,76 | 3,73 | 3,70 | 3,66 | 3,61 | 3,55 | 3,48 | 3,41 | 3,31 | 3,23 | 3,15 | 3,06 | 2,97 | 2,86 |
| 340  | 3,80 | 3,81 | 3,81 | 3,80 | 3,79 | 3,76 | 3,73 | 3,68 | 3,63 | 3,57 | 3,51 | 3,43 | 3,34 | 3,25 | 3,16 | 3,07 |
| 360  | 3,78 | 3,81 | 3,83 | 3,83 | 3,84 | 3,83 | 3,82 | 3,78 | 3,75 | 3,71 | 3,66 | 3,59 | 3,53 | 3,45 | 3,36 | 3,27 |
| 380  | 3,78 | 3,80 | 3,82 | 3,84 | 3,86 | 3,87 | 3,87 | 3,86 | 3,84 | 3,81 | 3,78 | 3,74 | 3,68 | 3,62 | 3,55 | 3,46 |
| 400  | 3,72 | 3,77 | 3,81 | 3,84 | 3,86 | 3,88 | 3,89 | 3,90 | 3,90 | 3,88 | 3,86 | 3,84 | 3,81 | 3,76 | 3,70 | 3,63 |
| 420  | 3,67 | 3,74 | 3,75 | 3,79 | 3,83 | 3,87 | 3,89 | 3,91 | 3,93 | 3,93 | 3,92 | 3,91 | 3,89 | 3,86 | 3,83 | 3,76 |
| 440  | 3,62 | 3,68 | 3,73 | 3,77 | 3,80 | 3,84 | 3,87 | 3,89 | 3,91 | 3,93 | 3,94 | 3,97 | 3,96 | 3,94 | 3,91 | 3,88 |
| 460  | 3,52 | 3,57 | 3,62 | 3,67 | 3,73 | 3,78 | 3,83 | 3,87 | 3,90 | 3,93 | 3,95 | 3,98 | 3,99 | 3,99 | 3,98 | 3,96 |
| 480  | 3,42 | 3,48 | 3,54 | 3,59 | 3,65 | 3,71 | 3,76 | 3,81 | 3,85 | 3,90 | 3,94 | 3,97 | 3,99 | 4,00 | 4,01 | 4,00 |
| 500  | 3,32 | 3,37 | 3,43 | 3,50 | 3,56 | 3,62 | 3,68 | 3,74 | 3,81 | 3,85 | 3,89 | 3,94 | 3,98 | 4,01 | 4,02 | 4,03 |
| 520  | 3,20 | 3,26 | 3,33 | 3,39 | 3,45 | 3,52 | 3,58 | 3,65 | 3,71 | 3,78 | 3,84 | 3,89 | 3,94 | 3,98 | 4,01 | 4,03 |
| 540  | 3,06 | 3,13 | 3,20 | 3,27 | 3,34 | 3,40 | 3,49 | 3,55 | 3,62 | 3,68 | 3,74 | 3,82 | 3,87 | 3,93 | 3,97 | 4,00 |
| 560  | 2,93 | 2,98 | 3,05 | 3,13 | 3,21 | 3,28 | 3,35 | 3,44 | 3,51 | 3,58 | 3,66 | 3,74 | 3,80 | 3,85 | 3,91 | 3,96 |
| 580  | 2,77 | 2,84 | 2,90 | 2,99 | 3,06 | 3,14 | 3,22 | 3,29 | 3,38 | 3,46 | 3,54 | 3,63 | 3,71 | 3,77 | 3,84 | 3,90 |
| 600  | 2,61 | 2,68 | 2,74 | 2,81 | 2,90 | 2,98 | 3,06 | 3,16 | 3,24 | 3,32 | 3,41 | 3,50 | 3,59 | 3,63 | 3,74 | 3,81 |
| 620  | 2,55 | 2,51 | 2,58 | 2,64 | 2,71 | 2,81 | 2,90 | 2,99 | 3,08 | 3,17 | 3,26 | 3,37 | 3,46 | 3,54 | 3,63 | 3,71 |
| 640  | 2,32 | 2,37 | 2,43 | 2,49 | 2,55 | 2,61 | 2,70 | 2,79 | 2,88 | 2,98 | 3,07 | 3,21 | 3,30 | 3,40 | 3,39 | 3,59 |
| 660  | 2,13 | 2,18 | 2,24 | 2,31 | 2,38 | 2,45 | 2,52 | 2,61 | 2,71 | 2,81 | 2,92 | 3,03 | 3,13 | 3,24 | 3,35 | 3,44 |
| 680  | 1,99 | 2,02 | 2,07 | 2,13 | 2,20 | 2,27 | 2,35 | 2,42 | 2,52 | 2,61 | 2,71 | 2,84 | 2,95 | 3,06 | 3,16 | 3,28 |
| 700  | 1,87 | 1,90 | 1,94 | 1,97 | 2,03 | 2,09 | 2,17 | 2,24 | 2,32 | 2,42 | 2,52 | 2,64 | 2,74 | 2,86 | 2,98 | 3,09 |
| 720  | 1,76 | 1,77 | 1,81 | 1,86 | 1,89 | 1,91 | 1,98 | 2,06 | 2,14 | 2,21 | 2,31 | 2,42 | 2,53 | 2,64 | 2,76 | 2,89 |
| 740  | 1,67 | 1,68 | 1,70 | 1,73 | 1,76 | 1,80 | 1,83 | 1,88 | 1,96 | 2,02 | 2,11 | 2,22 | 2,33 | 2,42 | 2,54 | 2,66 |
| 760  | 1,59 | 1,60 | 1,62 | 1,63 | 1,64 | 1,67 | 1,71 | 1,74 | 1,81 | 1,84 | 1,92 | 2,01 | 2,12 | 2,22 | 2,33 | 2,45 |
| 780  | 1,53 | 1,53 | 1,53 | 1,54 | 1,55 | 1,56 | 1,60 | 1,63 | 1,68 | 1,70 | 1,75 | 1,81 | 1,89 | 2,00 | 2,11 | 2,22 |
| 800  | 1,45 | 1,47 | 1,47 | 1,47 | 1,48 | 1,48 | 1,49 | 1,50 | 1,53 | 1,57 | 1,62 | 1,68 | 1,73 | 1,77 | 1,88 | 1,99 |
| 820  | 1,40 | 1,42 | 1,43 | 1,41 | 1,41 | 1,42 | 1,42 | 1,42 | 1,46 | 1,46 | 1,48 | 1,53 | 1,59 | 1,65 | 1,71 | 1,78 |
| 840  | 1,36 | 1,37 | 1,36 | 1,37 | 1,34 | 1,33 | 1,33 | 1,32 | 1,34 | 1,35 | 1,36 | 1,41 | 1,45 | 1,49 | 1,54 | 1,61 |
| 860  | 1,32 | 1,33 | 1,33 | 1,33 | 1,34 | 1,33 | 1,32 | 1,30 | 1,30 | 1,30 | 1,32 | 1,31 | 1,34 | 1,37 | 1,41 | 1,45 |
| 880  | 1,31 | 1,31 | 1,30 | 1,30 | 1,30 | 1,31 | 1,28 | 1,28 | 1,26 | 1,24 | 1,24 | 1,26 | 1,26 | 1,27 | 1,30 | 1,32 |
| 900  | 1,28 | 1,29 | 1,30 | 1,29 | 1,28 | 1,28 | 1,27 | 1,25 | 1,23 | 1,22 | 1,19 | 1,19 | 1,20 | 1,20 | 1,21 | 1,22 |
| 920  | 1,26 | 1,27 | 1,27 | 1,27 | 1,27 | 1,26 | 1,25 | 1,25 | 1,22 | 1,20 | 1,18 | 1,16 | 1,14 | 1,14 | 1,14 | 1,13 |
| 940  | 1,25 | 1,26 | 1,27 | 1,27 | 1,27 | 1,25 | 1,24 | 1,23 | 1,22 | 1,20 | 1,17 | 1,16 | 1,12 | 1,11 | 1,09 | 1,08 |
| 960  | 1,26 | 1,27 | 1,26 | 1,26 | 1,26 | 1,26 | 1,25 | 1,23 | 1,21 | 1,20 | 1,16 | 1,15 | 1,12 | 1,09 | 1,06 | 1,06 |
| 980  | 1,29 | 1,28 | 1,28 | 1,27 | 1,27 | 1,26 | 1,25 | 1,23 | 1,21 | 1,20 | 1,19 | 1,15 | 1,12 | 1,09 | 1,05 | 1,02 |
| 1000 | 1,33 | 1,32 | 1,29 | 1,30 | 1,28 | 1,28 | 1,26 | 1,25 | 1,24 | 1,21 | 1,19 | 1,18 | 1,14 | 1,11 | 1,07 | 1,03 |
| 400  | 410  | 420  | 430  | 440  | 450  | 460  | 470  | 480  | 490  | 500  | 510  | 520  | 530  | 540  | 550  |      |



TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,03 | 1,00 | 0,98 | 0,95 | 0,95 | 0,93 | 0,94 | 0,95 | 0,98 | 1,03 | 1,09 | 1,15 | 1,23 | 1,34 | 1,46 | 1,60 |
| 20   | 1,05 | 1,01 | 0,98 | 0,95 | 0,93 | 0,90 | 0,89 | 0,88 | 0,89 | 0,90 | 0,96 | 1,01 | 1,07 | 1,16 | 1,25 | 1,36 |
| 40   | 1,07 | 1,04 | 0,99 | 0,95 | 0,93 | 0,89 | 0,87 | 0,85 | 0,84 | 0,84 | 0,85 | 0,88 | 0,93 | 0,99 | 1,07 | 1,17 |
| 60   | 1,12 | 1,08 | 1,04 | 0,98 | 0,94 | 0,91 | 0,87 | 0,83 | 0,82 | 0,79 | 0,81 | 0,80 | 0,82 | 0,87 | 0,92 | 1,00 |
| 80   | 1,17 | 1,12 | 1,07 | 1,02 | 0,98 | 0,93 | 0,89 | 0,84 | 0,81 | 0,79 | 0,77 | 0,75 | 0,75 | 0,77 | 0,80 | 0,85 |
| 100  | 1,21 | 1,18 | 1,12 | 1,08 | 1,03 | 0,99 | 0,93 | 0,87 | 0,83 | 0,78 | 0,77 | 0,74 | 0,70 | 0,71 | 0,73 | 0,75 |
| 120  | 1,27 | 1,24 | 1,20 | 1,15 | 1,09 | 1,04 | 0,97 | 0,92 | 0,88 | 0,82 | 0,77 | 0,73 | 0,71 | 0,68 | 0,67 | 0,68 |
| 140  | 1,36 | 1,31 | 1,26 | 1,22 | 1,16 | 1,10 | 1,04 | 0,98 | 0,93 | 0,88 | 0,82 | 0,77 | 0,72 | 0,69 | 0,65 | 0,63 |
| 160  | 1,45 | 1,40 | 1,35 | 1,30 | 1,26 | 1,18 | 1,12 | 1,05 | 0,98 | 0,93 | 0,88 | 0,82 | 0,76 | 0,72 | 0,67 | 0,65 |
| 180  | 1,57 | 1,51 | 1,45 | 1,39 | 1,35 | 1,28 | 1,21 | 1,14 | 1,09 | 1,01 | 0,95 | 0,89 | 0,82 | 0,77 | 0,71 | 0,67 |
| 200  | 1,70 | 1,64 | 1,58 | 1,50 | 1,44 | 1,38 | 1,34 | 1,25 | 1,19 | 1,11 | 1,04 | 0,96 | 0,91 | 0,85 | 0,77 | 0,72 |
| 220  | 1,85 | 1,79 | 1,71 | 1,65 | 1,58 | 1,50 | 1,43 | 1,37 | 1,30 | 1,21 | 1,16 | 1,07 | 0,99 | 0,93 | 0,85 | 0,79 |
| 240  | 2,02 | 1,95 | 1,87 | 1,79 | 1,73 | 1,65 | 1,57 | 1,49 | 1,44 | 1,35 | 1,28 | 1,19 | 1,10 | 1,03 | 0,97 | 0,89 |
| 260  | 2,22 | 2,14 | 2,04 | 1,96 | 1,88 | 1,80 | 1,72 | 1,64 | 1,57 | 1,50 | 1,41 | 1,33 | 1,25 | 1,15 | 1,07 | 1,00 |
| 280  | 2,40 | 2,31 | 2,24 | 2,15 | 2,07 | 1,98 | 1,88 | 1,80 | 1,72 | 1,64 | 1,58 | 1,47 | 1,38 | 1,30 | 1,21 | 1,12 |
| 300  | 2,62 | 2,52 | 2,42 | 2,34 | 2,27 | 2,18 | 2,07 | 1,98 | 1,90 | 1,81 | 1,62 | 1,65 | 1,55 | 1,46 | 1,36 | 1,27 |
| 320  | 2,86 | 2,77 | 2,66 | 2,55 | 2,45 | 2,36 | 2,28 | 2,18 | 2,09 | 1,99 | 1,89 | 1,80 | 1,72 | 1,63 | 1,53 | 1,44 |
| 340  | 3,07 | 2,99 | 2,89 | 2,79 | 2,68 | 2,58 | 2,46 | 2,38 | 2,29 | 2,19 | 2,09 | 2,00 | 1,90 | 1,83 | 1,71 | 1,62 |
| 360  | 3,27 | 3,19 | 3,09 | 3,00 | 2,91 | 2,81 | 2,70 | 2,58 | 2,49 | 2,39 | 2,31 | 2,19 | 2,09 | 2,00 | 1,91 | 1,81 |
| 380  | 3,46 | 3,39 | 3,30 | 3,22 | 3,12 | 3,03 | 2,93 | 2,82 | 2,72 | 2,61 | 2,51 | 2,42 | 2,31 | 2,21 | 2,10 | 2,02 |
| 400  | 3,63 | 3,57 | 3,49 | 3,40 | 3,32 | 3,23 | 3,14 | 3,04 | 2,94 | 2,84 | 2,74 | 2,62 | 2,51 | 2,42 | 2,32 | 2,23 |
| 420  | 3,76 | 3,72 | 3,66 | 3,59 | 3,51 | 3,42 | 3,33 | 3,25 | 3,15 | 3,06 | 2,96 | 2,86 | 2,74 | 2,64 | 2,52 | 2,42 |
| 440  | 3,88 | 3,84 | 3,79 | 3,73 | 3,68 | 3,61 | 3,53 | 3,44 | 3,35 | 3,26 | 3,18 | 3,08 | 2,97 | 2,87 | 2,76 | 2,65 |
| 460  | 3,96 | 3,95 | 3,90 | 3,85 | 3,81 | 3,77 | 3,71 | 3,63 | 3,55 | 3,46 | 3,37 | 3,28 | 3,16 | 3,07 | 2,96 | 2,77 |
| 480  | 4,00 | 4,00 | 3,99 | 3,96 | 3,91 | 3,88 | 3,83 | 3,73 | 3,70 | 3,62 | 3,55 | 3,46 | 3,37 | 3,29 | 3,19 | 3,10 |
| 500  | 4,03 | 4,04 | 4,03 | 4,02 | 4,00 | 3,96 | 3,93 | 3,89 | 3,84 | 3,78 | 3,72 | 3,64 | 3,55 | 3,47 | 3,38 | 3,30 |
| 520  | 4,03 | 4,05 | 4,06 | 4,06 | 4,06 | 4,04 | 4,00 | 3,97 | 3,94 | 3,89 | 3,85 | 3,78 | 3,72 | 3,65 | 3,57 | 3,47 |
| 540  | 4,00 | 4,05 | 4,06 | 4,07 | 4,08 | 4,08 | 4,07 | 4,05 | 4,01 | 3,99 | 3,95 | 3,90 | 3,84 | 3,78 | 3,72 | 3,66 |
| 560  | 3,96 | 4,01 | 4,05 | 4,07 | 4,09 | 4,10 | 4,10 | 4,09 | 4,08 | 4,05 | 4,04 | 4,00 | 3,95 | 3,91 | 3,85 | 3,79 |
| 580  | 3,90 | 3,96 | 4,00 | 4,03 | 4,08 | 4,10 | 4,11 | 4,11 | 4,11 | 4,11 | 4,09 | 4,07 | 4,03 | 4,00 | 3,95 | 3,91 |
| 600  | 3,81 | 3,88 | 3,94 | 4,00 | 4,04 | 4,07 | 4,09 | 4,11 | 4,13 | 4,13 | 4,13 | 4,12 | 4,09 | 4,07 | 4,04 | 4,00 |
| 620  | 3,71 | 3,80 | 3,86 | 3,92 | 3,99 | 4,04 | 4,07 | 4,10 | 4,13 | 4,14 | 4,14 | 4,13 | 4,13 | 4,12 | 4,10 | 4,08 |
| 640  | 3,59 | 3,69 | 3,76 | 3,84 | 3,91 | 3,97 | 4,02 | 4,06 | 4,11 | 4,13 | 4,15 | 4,16 | 4,15 | 4,15 | 4,13 | 4,12 |
| 660  | 3,44 | 3,55 | 3,64 | 3,72 | 3,82 | 3,89 | 3,95 | 4,00 | 4,05 | 4,10 | 4,13 | 4,15 | 4,16 | 4,17 | 4,16 | 4,17 |
| 680  | 3,28 | 3,39 | 3,50 | 3,60 | 3,70 | 3,79 | 3,86 | 3,93 | 4,00 | 4,05 | 4,10 | 4,13 | 4,15 | 4,17 | 4,17 | 4,18 |
| 700  | 3,09 | 3,21 | 3,33 | 3,44 | 3,55 | 3,65 | 3,75 | 3,84 | 3,92 | 3,98 | 4,04 | 4,09 | 4,14 | 4,19 | 4,20 | 4,21 |
| 720  | 2,89 | 3,02 | 3,14 | 3,26 | 3,39 | 3,50 | 3,60 | 3,70 | 3,80 | 3,88 | 3,97 | 4,03 | 4,07 | 4,12 | 4,15 | 4,18 |
| 740  | 2,66 | 2,80 | 2,93 | 3,06 | 3,20 | 3,32 | 3,44 | 3,55 | 3,67 | 3,77 | 3,86 | 3,94 | 4,00 | 4,07 | 4,12 | 4,16 |
| 760  | 2,45 | 2,58 | 2,70 | 2,83 | 2,98 | 3,11 | 3,25 | 3,37 | 3,50 | 3,62 | 3,73 | 3,83 | 3,91 | 3,99 | 4,05 | 4,11 |
| 780  | 2,22 | 2,37 | 2,47 | 2,61 | 2,75 | 2,89 | 3,02 | 3,17 | 3,31 | 3,41 | 3,57 | 3,68 | 3,78 | 3,88 | 3,96 | 4,04 |
| 800  | 1,99 | 2,12 | 2,24 | 2,37 | 2,51 | 2,65 | 2,83 | 2,93 | 3,09 | 3,23 | 3,37 | 3,50 | 3,63 | 3,75 | 3,84 | 3,94 |
| 820  | 1,78 | 1,90 | 2,01 | 2,14 | 2,27 | 2,41 | 2,55 | 2,70 | 2,85 | 3,00 | 3,15 | 3,30 | 3,44 | 3,58 | 3,69 | 3,81 |
| 840  | 1,61 | 1,70 | 1,79 | 1,90 | 2,03 | 2,17 | 2,30 | 2,45 | 2,60 | 2,65 | 2,91 | 3,07 | 3,22 | 3,36 | 3,51 | 3,64 |
| 860  | 1,45 | 1,52 | 1,61 | 1,69 | 1,79 | 1,92 | 2,05 | 2,20 | 2,35 | 2,51 | 2,66 | 2,82 | 2,97 | 3,13 | 3,29 | 3,45 |
| 880  | 1,32 | 1,38 | 1,43 | 1,52 | 1,61 | 1,70 | 1,81 | 1,93 | 2,09 | 2,24 | 2,41 | 2,57 | 2,72 | 2,89 | 3,04 | 3,21 |
| 900  | 1,22 | 1,26 | 1,29 | 1,34 | 1,42 | 1,51 | 1,61 | 1,71 | 1,82 | 1,97 | 2,13 | 2,29 | 2,45 | 2,63 | 2,79 | 2,97 |
| 920  | 1,13 | 1,17 | 1,19 | 1,22 | 1,26 | 1,33 | 1,41 | 1,51 | 1,62 | 1,73 | 1,86 | 2,01 | 2,17 | 2,35 | 2,52 | 2,69 |
| 940  | 1,08 | 1,08 | 1,10 | 1,12 | 1,15 | 1,19 | 1,25 | 1,33 | 1,41 | 1,52 | 1,65 | 1,77 | 1,89 | 2,06 | 2,23 | 2,42 |
| 960  | 1,06 | 1,05 | 1,03 | 1,03 | 1,06 | 1,08 | 1,10 | 1,16 | 1,24 | 1,32 | 1,43 | 1,54 | 1,66 | 1,80 | 1,94 | 2,12 |
| 980  | 1,02 | 1,01 | 1,00 | 0,99 | 0,98 | 1,00 | 1,02 | 1,03 | 1,09 | 1,15 | 1,23 | 1,33 | 1,43 | 1,57 | 1,70 | 1,85 |
| 1000 | 1,03 | 1,00 | 0,98 | 0,95 | 0,95 | 0,93 | 0,94 | 0,95 | 0,98 | 1,03 | 1,09 | 1,15 | 1,23 | 1,34 | 1,46 | 1,60 |
| 550  | 560  | 570  | 580  | 590  | 600  | 610  | 620  | 630  | 640  | 650  | 660  | 670  | 680  | 690  | 700  |      |



TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1,60 | 1,75 | 1,89 | 2,06 | 2,24 | 2,41 | 2,60 | 2,80 | 3,01 | 3,17 | 3,34 | 3,49 | 3,63 | 3,76 | 3,87 | 3,96 |
| 20   | 1,36 | 1,48 | 1,63 | 1,82 | 1,95 | 2,11 | 2,29 | 2,49 | 2,69 | 2,86 | 3,05 | 3,22 | 3,38 | 3,53 | 3,67 | 3,80 |
| 40   | 1,17 | 1,27 | 1,39 | 1,53 | 1,67 | 1,84 | 2,00 | 2,17 | 2,36 | 2,56 | 2,76 | 2,94 | 3,12 | 3,29 | 3,45 | 3,59 |
| 60   | 1,00 | 1,07 | 1,17 | 1,30 | 1,43 | 1,57 | 1,73 | 1,91 | 2,06 | 2,23 | 2,43 | 2,63 | 2,82 | 3,01 | 3,19 | 3,35 |
| 80   | 0,85 | 0,92 | 0,99 | 1,09 | 1,19 | 1,31 | 1,45 | 1,62 | 1,79 | 1,96 | 2,14 | 2,31 | 2,50 | 2,70 | 2,89 | 3,07 |
| 100  | 0,75 | 0,78 | 0,83 | 0,92 | 1,01 | 1,10 | 1,22 | 1,35 | 1,50 | 1,66 | 1,84 | 2,03 | 2,20 | 2,39 | 2,58 | 2,77 |
| 120  | 0,68 | 0,70 | 0,73 | 0,78 | 0,84 | 0,92 | 1,01 | 1,14 | 1,26 | 1,40 | 1,56 | 1,72 | 1,90 | 2,09 | 2,26 | 2,45 |
| 140  | 0,63 | 0,64 | 0,66 | 0,68 | 0,71 | 0,76 | 0,83 | 0,94 | 1,04 | 1,15 | 1,30 | 1,45 | 1,62 | 1,79 | 1,97 | 2,15 |
| 160  | 0,65 | 0,60 | 0,60 | 0,61 | 0,61 | 0,66 | 0,69 | 0,77 | 0,85 | 0,95 | 1,08 | 1,20 | 1,44 | 1,51 | 1,67 | 1,85 |
| 180  | 0,67 | 0,63 | 0,59 | 0,58 | 0,58 | 0,58 | 0,60 | 0,65 | 0,70 | 0,77 | 0,87 | 0,99 | 1,11 | 1,35 | 1,41 | 1,56 |
| 200  | 0,72 | 0,66 | 0,62 | 0,57 | 0,56 | 0,55 | 0,54 | 0,56 | 0,59 | 0,65 | 0,71 | 0,79 | 0,88 | 1,02 | 1,15 | 1,30 |
| 220  | 0,79 | 0,73 | 0,67 | 0,61 | 0,57 | 0,52 | 0,52 | 0,52 | 0,52 | 0,55 | 0,59 | 0,65 | 0,73 | 0,82 | 0,93 | 1,05 |
| 240  | 0,89 | 0,81 | 0,74 | 0,68 | 0,62 | 0,57 | 0,53 | 0,51 | 0,49 | 0,49 | 0,52 | 0,55 | 0,59 | 0,68 | 0,75 | 0,85 |
| 260  | 1,00 | 0,92 | 0,83 | 0,77 | 0,70 | 0,63 | 0,57 | 0,53 | 0,50 | 0,48 | 0,48 | 0,48 | 0,50 | 0,55 | 0,65 | 0,69 |
| 280  | 1,12 | 1,04 | 0,95 | 0,87 | 0,79 | 0,71 | 0,64 | 0,59 | 0,55 | 0,49 | 0,48 | 0,46 | 0,45 | 0,49 | 0,51 | 0,56 |
| 300  | 1,27 | 1,18 | 1,09 | 1,01 | 0,91 | 0,83 | 0,76 | 0,67 | 0,60 | 0,55 | 0,51 | 0,48 | 0,46 | 0,45 | 0,46 | 0,48 |
| 320  | 1,44 | 1,33 | 1,23 | 1,16 | 1,05 | 0,96 | 0,87 | 0,79 | 0,70 | 0,62 | 0,58 | 0,52 | 0,48 | 0,46 | 0,44 | 0,44 |
| 340  | 1,62 | 1,52 | 1,40 | 1,30 | 1,21 | 1,11 | 1,00 | 0,92 | 0,83 | 0,74 | 0,66 | 0,60 | 0,55 | 0,49 | 0,47 | 0,44 |
| 360  | 1,81 | 1,71 | 1,60 | 1,49 | 1,38 | 1,28 | 1,18 | 1,08 | 0,97 | 0,88 | 0,79 | 0,70 | 0,60 | 0,54 | 0,49 | 0,45 |
| 380  | 2,02 | 1,89 | 1,79 | 1,69 | 1,58 | 1,47 | 1,36 | 1,25 | 1,14 | 1,05 | 0,95 | 0,84 | 0,74 | 0,68 | 0,61 | 0,54 |
| 400  | 2,23 | 2,12 | 2,00 | 1,89 | 1,78 | 1,65 | 1,54 | 1,45 | 1,33 | 1,21 | 1,12 | 1,01 | 0,90 | 0,81 | 0,73 | 0,65 |
| 420  | 2,42 | 2,33 | 2,23 | 2,11 | 2,00 | 1,88 | 1,76 | 1,64 | 1,54 | 1,41 | 1,30 | 1,19 | 1,08 | 0,99 | 0,87 | 0,78 |
| 440  | 2,65 | 2,52 | 2,42 | 2,31 | 2,21 | 2,09 | 1,98 | 1,86 | 1,75 | 1,63 | 1,52 | 1,39 | 1,27 | 1,16 | 1,05 | 0,94 |
| 460  | 2,77 | 2,73 | 2,61 | 2,50 | 2,41 | 2,29 | 2,20 | 2,09 | 1,95 | 1,83 | 1,73 | 1,61 | 1,49 | 1,37 | 1,25 | 1,12 |
| 480  | 3,10 | 2,99 | 2,88 | 2,77 | 2,65 | 2,54 | 2,42 | 2,32 | 2,20 | 2,06 | 1,95 | 1,83 | 1,70 | 1,58 | 1,47 | 1,35 |
| 500  | 3,30 | 3,20 | 3,10 | 3,00 | 2,89 | 2,76 | 2,65 | 2,53 | 2,42 | 2,30 | 2,18 | 2,05 | 1,94 | 1,81 | 1,68 | 1,56 |
| 520  | 3,47 | 3,38 | 3,29 | 3,20 | 3,10 | 2,99 | 2,88 | 2,78 | 2,65 | 2,51 | 2,41 | 2,29 | 2,16 | 2,04 | 1,91 | 1,78 |
| 540  | 3,66 | 3,57 | 3,48 | 3,39 | 3,28 | 3,19 | 3,09 | 2,99 | 2,89 | 2,76 | 2,64 | 2,51 | 2,39 | 2,28 | 2,16 | 2,02 |
| 560  | 3,79 | 3,72 | 3,64 | 3,58 | 3,48 | 3,39 | 3,29 | 3,20 | 3,09 | 2,99 | 2,87 | 2,75 | 2,62 | 2,49 | 2,38 | 2,27 |
| 580  | 3,91 | 3,85 | 3,78 | 3,72 | 3,64 | 3,55 | 3,46 | 3,38 | 3,29 | 3,19 | 3,11 | 2,98 | 2,86 | 2,74 | 2,60 | 2,47 |
| 600  | 4,00 | 3,95 | 3,89 | 3,85 | 3,78 | 3,71 | 3,63 | 3,55 | 3,45 | 3,36 | 3,28 | 3,20 | 3,08 | 2,98 | 2,86 | 2,72 |
| 620  | 4,08 | 4,03 | 4,00 | 3,95 | 3,88 | 3,77 | 3,76 | 3,71 | 3,63 | 3,54 | 3,45 | 3,36 | 3,28 | 3,17 | 3,06 | 2,96 |
| 640  | 4,12 | 4,10 | 4,06 | 4,03 | 3,98 | 3,93 | 3,88 | 3,83 | 3,75 | 3,68 | 3,61 | 3,52 | 3,44 | 3,37 | 3,26 | 3,15 |
| 660  | 4,17 | 4,14 | 4,12 | 4,09 | 4,05 | 4,01 | 3,96 | 3,92 | 3,87 | 3,80 | 3,75 | 3,67 | 3,59 | 3,52 | 3,44 | 3,34 |
| 680  | 4,18 | 4,18 | 4,15 | 4,14 | 4,12 | 4,08 | 4,04 | 4,00 | 3,95 | 3,90 | 3,85 | 3,80 | 3,72 | 3,66 | 3,59 | 3,52 |
| 700  | 4,21 | 4,21 | 4,22 | 4,21 | 4,18 | 4,14 | 4,10 | 4,06 | 4,03 | 3,98 | 3,94 | 3,88 | 3,82 | 3,77 | 3,70 | 3,65 |
| 720  | 4,18 | 4,19 | 4,19 | 4,20 | 4,19 | 4,17 | 4,14 | 4,12 | 4,09 | 4,05 | 4,01 | 3,96 | 3,92 | 3,87 | 3,81 | 3,74 |
| 740  | 4,16 | 4,18 | 4,19 | 4,20 | 4,20 | 4,20 | 4,18 | 4,16 | 4,13 | 4,09 | 4,08 | 4,03 | 3,99 | 3,95 | 3,90 | 3,84 |
| 760  | 4,11 | 4,15 | 4,17 | 4,20 | 4,21 | 4,21 | 4,20 | 4,19 | 4,17 | 4,15 | 4,12 | 4,08 | 4,04 | 4,01 | 3,97 | 3,92 |
| 780  | 4,04 | 4,09 | 4,14 | 4,17 | 4,19 | 4,20 | 4,21 | 4,22 | 4,21 | 4,18 | 4,16 | 4,13 | 4,09 | 4,07 | 4,03 | 3,98 |
| 800  | 3,94 | 4,01 | 4,08 | 4,14 | 4,17 | 4,19 | 4,20 | 4,22 | 4,22 | 4,21 | 4,19 | 4,18 | 4,15 | 4,12 | 4,08 | 4,04 |
| 820  | 3,81 | 3,90 | 3,98 | 4,06 | 4,12 | 4,16 | 4,19 | 4,22 | 4,22 | 4,22 | 4,23 | 4,20 | 4,18 | 4,16 | 4,13 | 4,09 |
| 840  | 3,64 | 3,76 | 3,86 | 3,95 | 4,03 | 4,09 | 4,14 | 4,18 | 4,21 | 4,22 | 4,23 | 4,23 | 4,22 | 4,19 | 4,17 | 4,14 |
| 860  | 3,45 | 3,59 | 3,71 | 3,82 | 3,92 | 4,00 | 4,08 | 4,13 | 4,17 | 4,20 | 4,23 | 4,23 | 4,23 | 4,23 | 4,21 | 4,18 |
| 880  | 3,21 | 3,36 | 3,51 | 3,65 | 3,77 | 3,88 | 3,97 | 4,05 | 4,11 | 4,16 | 4,21 | 4,22 | 4,23 | 4,24 | 4,23 | 4,21 |
| 900  | 2,97 | 3,12 | 3,28 | 3,44 | 3,58 | 3,70 | 3,81 | 3,93 | 4,02 | 4,08 | 4,15 | 4,18 | 4,22 | 4,24 | 4,25 | 4,23 |
| 920  | 2,69 | 2,86 | 3,03 | 3,20 | 3,36 | 3,51 | 3,65 | 3,77 | 3,88 | 3,97 | 4,06 | 4,12 | 4,17 | 4,20 | 4,23 | 4,24 |
| 940  | 2,42 | 2,58 | 2,75 | 2,94 | 3,10 | 3,26 | 3,42 | 3,58 | 3,72 | 3,83 | 3,94 | 4,02 | 4,09 | 4,15 | 4,20 | 4,22 |
| 960  | 2,12 | 2,29 | 2,47 | 2,65 | 2,85 | 3,00 | 3,17 | 3,36 | 3,48 | 3,63 | 3,77 | 3,89 | 3,98 | 4,06 | 4,13 | 4,17 |
| 980  | 1,85 | 1,99 | 2,17 | 2,36 | 2,54 | 2,72 | 2,90 | 3,08 | 3,25 | 3,40 | 3,56 | 3,70 | 3,82 | 3,93 | 4,02 | 4,10 |
| 1000 | 1,60 | 1,75 | 1,89 | 2,06 | 2,24 | 2,41 | 2,60 | 2,80 | 3,01 | 3,17 | 3,34 | 3,49 | 3,63 | 3,76 | 3,87 | 3,97 |
|      | 700  | 710  | 720  | 730  | 740  | 750  | 760  | 770  | 780  | 790  | 800  | 810  | 820  | 830  | 840  | 850  |



## SOLAR TABLES.

TABLE XXI.

Perturbations of the Radius Vector produced by *Jupiter*.

ARGUMENTS. B and E.

E

| B    | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 3,96 | 4,03 | 4,10 | 4,15 | 4,18 | 4,20 | 4,20 | 4,19 | 4,17 | 4,15 | 4,11 | 4,07 | 4,04 | 4,01 | 3,97 | 3,94 |
| 20   | 3,80 | 3,91 | 3,99 | 4,08 | 4,14 | 4,18 | 4,20 | 4,22 | 4,22 | 4,22 | 4,17 | 4,16 | 4,11 | 4,07 | 4,02 | 3,98 |
| 40   | 3,59 | 3,72 | 3,83 | 3,95 | 4,04 | 4,10 | 4,15 | 4,18 | 4,20 | 4,20 | 4,20 | 4,18 | 4,16 | 4,13 | 4,08 | 4,04 |
| 60   | 3,35 | 3,51 | 3,63 | 3,76 | 3,88 | 3,98 | 4,05 | 4,11 | 4,15 | 4,18 | 4,18 | 4,19 | 4,17 | 4,15 | 4,12 | 4,09 |
| 80   | 3,07 | 3,24 | 3,40 | 3,55 | 3,68 | 3,80 | 3,90 | 3,99 | 4,06 | 4,11 | 4,14 | 4,16 | 4,17 | 4,17 | 4,13 | 4,12 |
| 100  | 2,77 | 2,95 | 3,13 | 3,31 | 3,45 | 3,59 | 3,71 | 3,83 | 3,93 | 4,01 | 4,06 | 4,10 | 4,13 | 4,15 | 4,14 | 4,13 |
| 120  | 2,45 | 2,64 | 2,83 | 3,03 | 3,20 | 3,35 | 3,49 | 3,62 | 3,74 | 3,84 | 3,94 | 4,01 | 4,06 | 4,09 | 4,11 | 4,12 |
| 140  | 2,15 | 2,33 | 2,50 | 2,70 | 2,90 | 3,08 | 3,24 | 3,39 | 3,53 | 3,65 | 3,75 | 3,85 | 3,93 | 4,00 | 4,04 | 4,07 |
| 160  | 1,85 | 2,03 | 2,22 | 2,40 | 2,57 | 2,76 | 2,95 | 3,12 | 3,28 | 3,43 | 3,56 | 3,68 | 3,78 | 3,85 | 3,93 | 3,98 |
| 180  | 1,56 | 1,73 | 1,90 | 2,09 | 2,29 | 2,46 | 2,63 | 2,82 | 2,99 | 3,16 | 3,31 | 3,45 | 3,58 | 3,69 | 3,78 | 3,86 |
| 200  | 1,30 | 1,45 | 1,61 | 1,80 | 1,97 | 2,16 | 2,34 | 2,51 | 2,69 | 2,86 | 3,03 | 3,19 | 3,34 | 3,47 | 3,58 | 3,68 |
| 220  | 1,05 | 1,19 | 1,34 | 1,51 | 1,68 | 1,85 | 2,03 | 2,22 | 2,40 | 2,57 | 2,73 | 2,90 | 3,07 | 3,23 | 3,36 | 3,49 |
| 240  | 0,85 | 0,97 | 1,11 | 1,25 | 1,40 | 1,56 | 1,73 | 1,90 | 2,09 | 2,27 | 2,45 | 2,62 | 2,77 | 2,94 | 3,10 | 3,24 |
| 260  | 0,69 | 0,77 | 0,88 | 1,02 | 1,15 | 1,36 | 1,47 | 1,62 | 1,78 | 1,96 | 2,14 | 2,32 | 2,50 | 2,65 | 2,80 | 2,97 |
| 280  | 0,56 | 0,62 | 0,71 | 0,82 | 0,92 | 1,03 | 1,21 | 1,36 | 1,51 | 1,68 | 1,85 | 2,02 | 2,19 | 2,36 | 2,54 | 2,69 |
| 300  | 0,48 | 0,52 | 0,58 | 0,66 | 0,76 | 0,86 | 0,97 | 1,11 | 1,26 | 1,41 | 1,57 | 1,73 | 1,90 | 2,08 | 2,24 | 2,41 |
| 320  | 0,44 | 0,45 | 0,49 | 0,54 | 0,61 | 0,68 | 0,80 | 0,90 | 1,02 | 1,16 | 1,31 | 1,47 | 1,62 | 1,79 | 1,96 | 2,12 |
| 340  | 0,44 | 0,43 | 0,43 | 0,46 | 0,51 | 0,57 | 0,64 | 0,73 | 0,83 | 0,94 | 1,08 | 1,22 | 1,37 | 1,52 | 1,68 | 1,85 |
| 360  | 0,45 | 0,42 | 0,41 | 0,40 | 0,44 | 0,47 | 0,53 | 0,60 | 0,70 | 0,79 | 0,91 | 1,03 | 1,06 | 1,20 | 1,46 | 1,58 |
| 380  | 0,54 | 0,50 | 0,46 | 0,45 | 0,43 | 0,44 | 0,46 | 0,50 | 0,56 | 0,63 | 0,71 | 0,81 | 0,94 | 1,06 | 1,19 | 1,33 |
| 400  | 0,65 | 0,58 | 0,51 | 0,49 | 0,46 | 0,44 | 0,44 | 0,45 | 0,48 | 0,53 | 0,60 | 0,67 | 0,76 | 0,86 | 0,99 | 1,11 |
| 420  | 0,78 | 0,70 | 0,63 | 0,57 | 0,51 | 0,48 | 0,45 | 0,45 | 0,45 | 0,48 | 0,51 | 0,57 | 0,64 | 0,72 | 0,82 | 0,92 |
| 440  | 0,94 | 0,84 | 0,76 | 0,69 | 0,62 | 0,55 | 0,51 | 0,48 | 0,45 | 0,45 | 0,47 | 0,50 | 0,55 | 0,60 | 0,68 | 0,77 |
| 460  | 1,12 | 1,01 | 0,91 | 0,82 | 0,74 | 0,67 | 0,59 | 0,55 | 0,50 | 0,48 | 0,47 | 0,48 | 0,49 | 0,54 | 0,58 | 0,65 |
| 480  | 1,35 | 1,22 | 1,09 | 1,00 | 0,90 | 0,82 | 0,75 | 0,61 | 0,56 | 0,51 | 0,49 | 0,48 | 0,48 | 0,50 | 0,54 | 0,59 |
| 500  | 1,56 | 1,43 | 1,31 | 1,19 | 1,08 | 0,98 | 0,88 | 0,79 | 0,70 | 0,64 | 0,58 | 0,54 | 0,51 | 0,51 | 0,52 | 0,55 |
| 520  | 1,78 | 1,66 | 1,52 | 1,41 | 1,28 | 1,16 | 1,05 | 0,95 | 0,87 | 0,78 | 0,69 | 0,64 | 0,59 | 0,55 | 0,53 | 0,53 |
| 540  | 2,02 | 1,89 | 1,75 | 1,64 | 1,51 | 1,38 | 1,26 | 1,14 | 1,03 | 0,93 | 0,85 | 0,76 | 0,70 | 0,65 | 0,60 | 0,58 |
| 560  | 2,27 | 2,14 | 1,99 | 1,87 | 1,74 | 1,61 | 1,47 | 1,36 | 1,24 | 1,12 | 1,01 | 0,92 | 0,84 | 0,75 | 0,70 | 0,65 |
| 580  | 2,47 | 2,36 | 2,24 | 2,11 | 1,98 | 1,85 | 1,70 | 1,57 | 1,45 | 1,34 | 1,21 | 1,10 | 1,00 | 0,92 | 0,82 | 0,76 |
| 600  | 2,72 | 2,58 | 2,46 | 2,35 | 2,22 | 2,09 | 1,95 | 1,82 | 1,68 | 1,56 | 1,43 | 1,31 | 1,20 | 1,09 | 0,99 | 0,90 |
| 620  | 2,96 | 2,83 | 2,70 | 2,59 | 2,45 | 2,32 | 2,20 | 2,06 | 1,92 | 1,78 | 1,66 | 1,54 | 1,41 | 1,30 | 1,18 | 1,08 |
| 640  | 3,15 | 3,05 | 2,92 | 2,81 | 2,70 | 2,56 | 2,42 | 2,30 | 2,18 | 2,03 | 1,88 | 1,76 | 1,63 | 1,51 | 1,39 | 1,28 |
| 660  | 3,34 | 3,24 | 3,14 | 3,03 | 2,91 | 2,80 | 2,67 | 2,53 | 2,40 | 2,28 | 2,15 | 2,01 | 1,86 | 1,74 | 1,61 | 1,49 |
| 680  | 3,52 | 3,41 | 3,31 | 3,22 | 3,12 | 3,01 | 2,90 | 2,78 | 2,64 | 2,51 | 2,37 | 2,24 | 2,12 | 1,99 | 1,86 | 1,73 |
| 700  | 3,65 | 3,58 | 3,48 | 3,40 | 3,30 | 3,20 | 3,09 | 2,99 | 2,88 | 2,75 | 2,62 | 2,48 | 2,34 | 2,21 | 2,09 | 1,96 |
| 720  | 3,74 | 3,67 | 3,63 | 3,55 | 3,47 | 3,37 | 3,27 | 3,18 | 3,08 | 2,97 | 2,85 | 2,73 | 2,60 | 2,46 | 2,31 | 2,20 |
| 740  | 3,84 | 3,79 | 3,73 | 3,68 | 3,60 | 3,52 | 3,44 | 3,33 | 3,25 | 3,16 | 3,05 | 2,95 | 2,83 | 2,71 | 2,57 | 2,42 |
| 760  | 3,92 | 3,86 | 3,81 | 3,77 | 3,72 | 3,65 | 3,58 | 3,50 | 3,40 | 3,31 | 3,23 | 3,13 | 3,03 | 2,92 | 2,80 | 2,68 |
| 780  | 3,98 | 3,94 | 3,88 | 3,85 | 3,79 | 3,75 | 3,69 | 3,62 | 3,55 | 3,47 | 3,39 | 3,30 | 3,20 | 3,10 | 2,90 |      |
| 800  | 4,04 | 4,00 | 3,96 | 3,92 | 3,87 | 3,82 | 3,78 | 3,72 | 3,66 | 3,59 | 3,52 | 3,44 | 3,37 | 3,28 | 3,18 | 3,09 |
| 820  | 4,09 | 4,05 | 4,01 | 3,98 | 3,93 | 3,88 | 3,88 | 3,81 | 3,74 | 3,69 | 3,63 | 3,56 | 3,49 | 3,43 | 3,35 | 3,25 |
| 840  | 4,14 | 4,10 | 4,06 | 4,02 | 3,99 | 3,95 | 3,90 | 3,86 | 3,82 | 3,76 | 3,72 | 3,67 | 3,60 | 3,53 | 3,48 | 3,41 |
| 860  | 4,18 | 4,15 | 4,11 | 4,09 | 4,04 | 4,00 | 3,95 | 3,91 | 3,88 | 3,85 | 3,79 | 3,74 | 3,69 | 3,63 | 3,58 | 3,52 |
| 880  | 4,21 | 4,19 | 4,17 | 4,13 | 4,09 | 4,05 | 4,01 | 3,96 | 3,92 | 3,88 | 3,85 | 3,80 | 3,76 | 3,72 | 3,66 | 3,61 |
| 900  | 4,23 | 4,22 | 4,18 | 4,18 | 4,14 | 4,10 | 4,06 | 4,02 | 3,97 | 3,93 | 3,89 | 3,87 | 3,81 | 3,77 | 3,73 | 3,68 |
| 920  | 4,24 | 4,24 | 4,23 | 4,21 | 4,18 | 4,15 | 4,11 | 4,07 | 4,03 | 3,99 | 3,94 | 3,90 | 3,88 | 3,83 | 3,79 | 3,75 |
| 940  | 4,22 | 4,24 | 4,24 | 4,25 | 4,21 | 4,19 | 4,16 | 4,13 | 4,07 | 4,03 | 3,99 | 3,95 | 3,91 | 3,88 | 3,83 | 3,80 |
| 960  | 4,17 | 4,21 | 4,22 | 4,24 | 4,24 | 4,23 | 4,19 | 4,17 | 4,13 | 4,09 | 4,05 | 4,00 | 3,95 | 3,92 | 3,89 | 3,84 |
| 980  | 4,10 | 4,16 | 4,19 | 4,23 | 4,23 | 4,24 | 4,22 | 4,20 | 4,17 | 4,14 | 4,10 | 4,07 | 4,01 | 3,97 | 3,93 | 3,91 |
| 1000 | 3,97 | 4,04 | 4,12 | 4,18 | 4,19 | 4,23 | 4,23 | 4,23 | 4,20 | 4,18 | 4,14 | 4,10 | 4,06 | 4,02 | 3,98 | 3,94 |
|      | 850  | 860  | 870  | 880  | 890  | 900  | 910  | 920  | 930  | 940  | 950  | 960  | 970  | 980  | 990  | 1000 |



TABLE XXII.

Perturbations of the Radius Vector, produced by *Saturn*.

ARGUMENTS. B and F.

F

|      | B    | 0    | 100  | 200  | 300  | 400  | 500  | 600  | 700  | 800  | 900  | 1000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 0,23 | 0,22 | 0,21 | 0,17 | 0,10 | 0,04 | 0,05 | 0,15 | 0,24 | 0,26 | 0,23 |      |
| 100  | 0,25 | 0,22 | 0,21 | 0,20 | 0,18 | 0,09 | 0,02 | 0,05 | 0,16 | 0,21 | 0,25 |      |
| 200  | 0,25 | 0,25 | 0,21 | 0,22 | 0,24 | 0,19 | 0,08 | 0,01 | 0,06 | 0,17 | 0,25 |      |
| 300  | 0,18 | 0,25 | 0,23 | 0,20 | 0,23 | 0,25 | 0,18 | 0,07 | 0,01 | 0,07 | 0,19 |      |
| 400  | 0,09 | 0,19 | 0,23 | 0,21 | 0,22 | 0,25 | 0,25 | 0,17 | 0,06 | 0,06 | 0,08 |      |
| 500  | 1,03 | 0,10 | 0,18 | 0,22 | 0,23 | 0,24 | 0,26 | 0,25 | 0,15 | 0,05 | 0,03 |      |
| 600  | 1,06 | 0,04 | 0,10 | 0,17 | 0,21 | 0,22 | 0,24 | 0,26 | 0,23 | 0,13 | 0,06 |      |
| 700  | 0,14 | 0,07 | 0,05 | 0,09 | 0,16 | 0,20 | 0,23 | 0,25 | 0,25 | 0,22 | 0,14 |      |
| 800  | 0,21 | 0,15 | 0,08 | 0,06 | 0,08 | 0,14 | 0,21 | 0,24 | 0,25 | 0,24 | 0,21 |      |
| 900  | 0,23 | 0,20 | 0,16 | 0,10 | 0,05 | 0,07 | 0,14 | 0,22 | 0,26 | 0,25 | 0,23 |      |
| 1000 | 0,23 | 0,22 | 0,21 | 0,17 | 0,10 | 0,04 | 0,05 | 0,15 | 0,24 | 0,26 | 0,23 |      |

TABLE XXIII.

Correction additive, for the Logarithm of the Radius Vector.

ARGUMENT. Mean Anomaly, and Sum of the Equations.

| Sum<br>of the<br>Equations | XII <sup>s</sup><br>0°<br>0° | XI <sup>s</sup><br>0°<br>1° | X <sup>s</sup><br>20°<br>1° | X <sup>s</sup><br>10°<br>1° | X <sup>s</sup><br>0°<br>11° | IX <sup>s</sup><br>20°<br>11° | IX <sup>s</sup><br>10°<br>11° | IX <sup>s</sup><br>0°<br>11° | VIII <sup>s</sup><br>20°<br>11° | VIII <sup>s</sup><br>10°<br>11° | VIII <sup>s</sup><br>0°<br>11° | VII <sup>s</sup><br>20°<br>11° | VII <sup>s</sup><br>10°<br>11° | VII <sup>s</sup><br>0°<br>11° | VI <sup>s</sup><br>20°<br>11° |
|----------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|
| 0,00                       | 5,58                         | 5,59                        | 5,60                        | 5,61                        | 5,62                        | 5,63                          | 5,65                          | 5,66                         | 5,67                            | 5,68                            | 5,69                           | 5,70                           | 5,71                           | 5,72                          | 5,73                          |
| 1,00                       | 6,02                         | 6,03                        | 6,04                        | 6,05                        | 6,06                        | 6,07                          | 6,08                          | 6,09                         | 6,10                            | 6,11                            | 6,12                           | 6,13                           | 6,14                           | 6,15                          | 6,16                          |
| 2,00                       | 6,47                         | 6,47                        | 6,48                        | 6,49                        | 6,50                        | 6,51                          | 6,52                          | 6,53                         | 6,54                            | 6,55                            | 6,56                           | 6,56                           | 6,57                           | 6,58                          | 6,58                          |
| 3,00                       | 6,91                         | 6,92                        | 6,92                        | 6,93                        | 6,94                        | 6,94                          | 6,95                          | 6,96                         | 6,97                            | 6,98                            | 6,99                           | 6,99                           | 7,00                           | 7,00                          | 7,01                          |
| 4,00                       | 7,35                         | 7,36                        | 7,36                        | 7,37                        | 7,37                        | 7,38                          | 7,39                          | 7,40                         | 7,40                            | 7,41                            | 7,42                           | 7,42                           | 7,43                           | 7,43                          | 7,44                          |
| 5,00                       | 7,79                         | 7,79                        | 7,80                        | 7,81                        | 7,81                        | 7,81                          | 7,82                          | 7,83                         | 7,84                            | 7,84                            | 7,85                           | 7,85                           | 7,86                           | 7,86                          | 7,86                          |
| 6,00                       | 8,23                         | 8,24                        | 8,24                        | 8,24                        | 8,25                        | 8,25                          | 8,26                          | 8,26                         | 8,27                            | 8,27                            | 8,28                           | 8,28                           | 8,29                           | 8,29                          | 8,29                          |
| 7,00                       | 8,67                         | 8,68                        | 8,68                        | 8,68                        | 8,69                        | 8,69                          | 8,69                          | 8,70                         | 8,70                            | 8,70                            | 8,71                           | 8,71                           | 8,71                           | 8,72                          | 8,72                          |
| 8,00                       | 9,12                         | 9,12                        | 9,12                        | 9,12                        | 9,12                        | 9,13                          | 9,13                          | 9,13                         | 9,13                            | 9,14                            | 9,14                           | 9,14                           | 9,14                           | 9,14                          | 9,15                          |
| 9,00                       | 9,56                         | 9,56                        | 9,56                        | 9,56                        | 9,56                        | 9,56                          | 9,56                          | 9,57                         | 9,57                            | 9,57                            | 9,57                           | 9,57                           | 9,57                           | 9,57                          | 9,57                          |
| 10,00                      | 10,00                        | 10,00                       | 10,00                       | 10,00                       | 10,00                       | 10,00                         | 10,00                         | 10,00                        | 10,00                           | 10,00                           | 10,00                          | 10,00                          | 10,00                          | 10,00                         | 10,00                         |
| 11,00                      | 10,44                        | 10,44                       | 10,44                       | 10,44                       | 10,44                       | 10,44                         | 10,44                         | 10,43                        | 10,43                           | 10,43                           | 10,43                          | 10,43                          | 10,43                          | 10,43                         | 10,43                         |
| 12,00                      | 10,88                        | 10,88                       | 10,88                       | 10,88                       | 10,88                       | 10,87                         | 10,87                         | 10,87                        | 10,87                           | 10,86                           | 10,86                          | 10,86                          | 10,86                          | 10,86                         | 10,85                         |
| 13,00                      | 11,33                        | 11,32                       | 11,32                       | 11,32                       | 11,31                       | 11,31                         | 11,31                         | 11,30                        | 11,30                           | 11,30                           | 11,29                          | 11,29                          | 11,29                          | 11,28                         | 11,28                         |
| 14,00                      | 11,77                        | 11,76                       | 11,76                       | 11,76                       | 11,75                       | 11,75                         | 11,74                         | 11,74                        | 11,74                           | 11,73                           | 11,72                          | 11,72                          | 11,71                          | 11,71                         | 11,71                         |
| 15,00                      | 12,21                        | 12,20                       | 12,20                       | 12,20                       | 12,19                       | 12,18                         | 12,18                         | 12,17                        | 12,17                           | 12,16                           | 12,15                          | 12,15                          | 12,14                          | 12,14                         | 12,14                         |
| 16,00                      | 12,65                        | 12,65                       | 12,64                       | 12,63                       | 12,63                       | 12,62                         | 12,61                         | 12,61                        | 12,61                           | 12,59                           | 12,58                          | 12,58                          | 12,57                          | 12,57                         | 12,56                         |
| 17,00                      | 13,09                        | 13,09                       | 13,08                       | 13,07                       | 13,06                       | 13,06                         | 13,05                         | 13,04                        | 13,04                           | 13,02                           | 13,01                          | 13,01                          | 13,00                          | 13,00                         | 12,99                         |
| 18,00                      | 13,53                        | 13,53                       | 13,52                       | 13,51                       | 13,50                       | 13,49                         | 13,48                         | 13,47                        | 13,47                           | 13,45                           | 13,44                          | 13,44                          | 13,43                          | 13,42                         | 13,42                         |
| 19,00                      | 13,98                        | 13,97                       | 13,96                       | 13,95                       | 13,94                       | 13,93                         | 13,92                         | 13,91                        | 13,91                           | 13,89                           | 13,88                          | 13,86                          | 13,86                          | 13,85                         | 13,84                         |
| 20,00                      | 14,42                        | 14,41                       | 14,40                       | 14,39                       | 14,38                       | 14,37                         | 14,35                         | 14,34                        | 14,34                           | 14,32                           | 14,31                          | 14,30                          | 14,29                          | 14,28                         | 14,27                         |

Proportional Parts.

|       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1,00  | 0,44 | 0,44 | 0,44 | 0,44 | 0,44 | 0,44 | 0,44 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 |
| 2,00  | 0,88 | 0,88 | 0,88 | 0,88 | 0,88 | 0,87 | 0,87 | 0,87 | 0,87 | 0,86 | 0,86 | 0,86 | 0,86 | 0,86 | 0,85 |
| 3,00  | 1,33 | 1,32 | 1,32 | 1,32 | 1,31 | 1,31 | 1,31 | 1,30 | 1,30 | 1,30 | 1,29 | 1,29 | 1,29 | 1,28 | 1,28 |
| 4,00  | 1,77 | 1,76 | 1,76 | 1,76 | 1,75 | 1,75 | 1,74 | 1,74 | 1,74 | 1,73 | 1,72 | 1,72 | 1,71 | 1,71 | 1,71 |
| 5,00  | 2,21 | 2,20 | 2,20 | 2,20 | 2,19 | 2,18 | 2,18 | 2,17 | 2,17 | 2,16 | 2,15 | 2,15 | 2,14 | 2,14 | 2,14 |
| 6,00  | 2,65 | 2,65 | 2,64 | 2,63 | 2,63 | 2,62 | 2,61 | 2,61 | 2,61 | 2,59 | 2,58 | 2,58 | 2,57 | 2,57 | 2,56 |
| 7,00  | 3,09 | 3,09 | 3,08 | 3,07 | 3,06 | 3,06 | 3,05 | 3,04 | 3,04 | 3,02 | 3,01 | 3,01 | 3,00 | 3,00 | 2,99 |
| 8,00  | 3,53 | 3,53 | 3,52 | 3,51 | 3,50 | 3,49 | 3,48 | 3,47 | 3,47 | 3,45 | 3,44 | 3,44 | 3,43 | 3,42 | 3,42 |
| 9,00  | 3,98 | 3,97 | 3,96 | 3,95 | 3,94 | 3,93 | 3,92 | 3,91 | 3,91 | 3,89 | 3,88 | 3,86 | 3,86 | 3,85 | 3,84 |
| 10,00 | 4,42 | 4,41 | 4,40 | 4,39 | 4,38 | 4,37 | 4,35 | 4,34 | 4,34 | 4,32 | 4,31 | 4,30 | 4,29 | 4,28 | 4,27 |



TABLE XXIV.

Semi-diameter, Horary Motion, and Horizontal Parallax.

ARGUMENT. Sun's Mean Anomaly.

| Deg. | Sig. O.    |           |         | Sig. I.    |           |         | Sig. II.   |           |         |    |
|------|------------|-----------|---------|------------|-----------|---------|------------|-----------|---------|----|
|      | Semi-diam. | Hor. Mot. | Parall. | Semi-diam. | Hor. Mot. | Parall. | Semi-diam. | Hor. Mot. | Parall. |    |
| 0    | 16. 17,79  | 2. 32,92  | 8,95    | 16. 15,49  | 2. 32,20  | 8,93    | 16. 9,30   | 2. 30,28  | 8,87    | 30 |
| 1    | 16. 17,79  | 2. 32,92  | 8,95    | 16. 15,34  | 2. 32,15  | 8,93    | 16. 9,05   | 2. 30,20  | 8,87    | 29 |
| 2    | 16. 17,78  | 2. 32,92  | 8,95    | 16. 15,18  | 2. 32,10  | 8,93    | 16. 8,79   | 2. 30,12  | 8,87    | 28 |
| 3    | 16. 17,77  | 2. 32,91  | 8,95    | 16. 15,02  | 2. 32,05  | 8,92    | 16. 8,54   | 2. 30,04  | 8,87    | 27 |
| 4    | 16. 17,75  | 2. 32,91  | 8,95    | 16. 14,85  | 2. 32,00  | 8,92    | 16. 8,28   | 2. 29,96  | 8,86    | 26 |
| 5    | 16. 17,73  | 2. 32,90  | 8,95    | 16. 14,69  | 2. 31,95  | 8,92    | 16. 8,02   | 2. 29,88  | 8,86    | 25 |
| 6    | 16. 17,70  | 2. 32,89  | 8,95    | 16. 14,51  | 2. 31,90  | 8,92    | 16. 7,75   | 2. 29,80  | 8,86    | 24 |
| 7    | 16. 17,66  | 2. 32,88  | 8,95    | 16. 14,34  | 2. 31,84  | 8,92    | 16. 7,49   | 2. 29,71  | 8,86    | 23 |
| 8    | 16. 17,62  | 2. 32,87  | 8,95    | 16. 14,16  | 2. 31,78  | 8,92    | 16. 7,22   | 2. 29,63  | 8,85    | 22 |
| 9    | 16. 17,58  | 2. 32,86  | 8,95    | 16. 13,97  | 2. 31,73  | 8,91    | 16. 6,95   | 2. 29,54  | 8,85    | 21 |
| 10   | 16. 17,53  | 2. 32,84  | 8,95    | 16. 13,78  | 2. 31,67  | 8,91    | 16. 6,68   | 2. 29,46  | 8,85    | 20 |
| 11   | 16. 17,47  | 2. 32,82  | 8,95    | 16. 13,59  | 2. 31,61  | 8,91    | 16. 6,41   | 2. 29,38  | 8,85    | 19 |
| 12   | 16. 17,41  | 2. 32,80  | 8,95    | 16. 13,39  | 2. 31,55  | 8,91    | 16. 6,14   | 2. 29,30  | 8,84    | 18 |
| 13   | 16. 17,35  | 2. 32,78  | 8,95    | 16. 13,20  | 2. 31,48  | 8,91    | 16. 5,86   | 2. 29,21  | 8,84    | 17 |
| 14   | 16. 17,28  | 2. 32,76  | 8,95    | 16. 12,99  | 2. 31,42  | 8,91    | 16. 5,59   | 2. 29,13  | 8,84    | 16 |
| 15   | 16. 17,20  | 2. 32,73  | 8,95    | 16. 12,78  | 2. 31,36  | 8,90    | 16. 5,31   | 2. 29,04  | 8,84    | 15 |
| 16   | 16. 17,12  | 2. 32,71  | 8,94    | 16. 12,57  | 2. 31,29  | 8,90    | 16. 5,04   | 2. 28,96  | 8,83    | 14 |
| 17   | 16. 17,04  | 2. 32,68  | 8,94    | 16. 12,36  | 2. 31,22  | 8,90    | 16. 4,76   | 2. 28,87  | 8,83    | 13 |
| 18   | 16. 16,95  | 2. 32,65  | 8,94    | 16. 12,14  | 2. 31,16  | 8,90    | 16. 4,48   | 2. 28,78  | 8,83    | 12 |
| 19   | 16. 16,85  | 2. 32,62  | 8,94    | 16. 11,92  | 2. 31,09  | 8,90    | 16. 4,20   | 2. 28,70  | 8,83    | 11 |
| 20   | 16. 16,75  | 2. 32,59  | 8,94    | 16. 11,69  | 2. 31,02  | 8,89    | 16. 3,92   | 2. 28,61  | 8,82    | 10 |
| 21   | 16. 16,65  | 2. 32,56  | 8,94    | 16. 11,46  | 2. 30,95  | 8,89    | 16. 3,64   | 2. 28,52  | 8,82    | 9  |
| 22   | 16. 16,54  | 2. 32,53  | 8,94    | 16. 11,24  | 2. 30,88  | 8,89    | 16. 3,36   | 2. 28,44  | 8,82    | 8  |
| 23   | 16. 16,42  | 2. 32,49  | 8,94    | 16. 11,01  | 2. 30,80  | 8,89    | 16. 3,07   | 2. 28,35  | 8,82    | 7  |
| 24   | 16. 16,30  | 2. 32,45  | 8,94    | 16. 10,77  | 2. 30,73  | 8,89    | 16. 2,79   | 2. 28,26  | 8,81    | 6  |
| 25   | 16. 16,18  | 2. 32,41  | 8,94    | 16. 10,54  | 2. 30,66  | 8,88    | 16. 2,51   | 2. 28,18  | 8,81    | 5  |
| 26   | 16. 16,05  | 2. 32,37  | 8,93    | 16. 10,29  | 2. 30,58  | 8,88    | 16. 2,23   | 2. 28,09  | 8,81    | 4  |
| 27   | 16. 15,92  | 2. 32,33  | 8,93    | 16. 10,05  | 2. 30,51  | 8,88    | 16. 1,95   | 2. 28,00  | 8,80    | 3  |
| 28   | 16. 15,78  | 2. 32,29  | 8,93    | 16. 9,80   | 2. 30,43  | 8,88    | 16. 1,67   | 2. 27,92  | 8,80    | 2  |
| 29   | 16. 15,63  | 2. 32,24  | 8,93    | 16. 9,55   | 2. 30,35  | 8,87    | 16. 1,38   | 2. 27,83  | 8,80    | 1  |
| 30   | 16. 15,49  | 2. 32,20  | 8,93    | 16. 9,30   | 2. 30,28  | 8,87    | 16. 1,10   | 2. 27,74  | 8,80    | 0  |
|      | Sig. XI.   |           |         | Sig. X.    |           |         | Sig. IX.   |           |         | D  |

If we suppose the semi-diameter at the mean distance to vary by 1'', there results the variation of  $1'' + 0'',017 \cos. (\odot + 2^s. 20\frac{1}{2}^\circ)$  for any other semi-diameter.



## Continuation of TABLE XXIV.

ARGUMENT. Sun's Mean Anomaly.

| Deg. | Sig. III.  |           |         | Sig. IV.   |           |         | Sig. V.    |           |         |    |
|------|------------|-----------|---------|------------|-----------|---------|------------|-----------|---------|----|
|      | Semi-diam. | Hor. Mot. | Parall. | Semi-diam. | Hor. Mot. | Parall. | Semi-diam. | Hor. Mot. | Parall. |    |
| 0    | 16. 1,10   | 2. 27,74  | 8,80    | 15. 53,17  | 2. 25,32  | 8,72    | 15. 47,53  | 2. 23,60  | 8,67    | 30 |
| 1    | 16. 0,82   | 2. 27,66  | 8,79    | 15. 52,94  | 2. 25,24  | 8,72    | 15. 47,40  | 2. 23,56  | 8,67    | 29 |
| 2    | 16. 0,54   | 2. 27,57  | 8,79    | 15. 52,70  | 2. 25,17  | 8,72    | 15. 47,27  | 2. 23,52  | 8,67    | 28 |
| 3    | 16. 0,26   | 2. 27,48  | 8,79    | 15. 52,48  | 2. 25,10  | 8,72    | 15. 47,15  | 2. 23,48  | 8,67    | 27 |
| 4    | 15. 59,98  | 2. 27,40  | 8,78    | 15. 52,25  | 2. 25,03  | 8,72    | 15. 47,03  | 2. 23,45  | 8,67    | 26 |
| 5    | 15. 59,70  | 2. 27,31  | 8,78    | 15. 52,03  | 2. 24,96  | 8,71    | 15. 46,92  | 2. 23,41  | 8,67    | 25 |
| 6    | 15. 59,42  | 2. 27,23  | 8,78    | 15. 51,81  | 2. 24,90  | 8,71    | 15. 46,81  | 2. 23,38  | 8,67    | 24 |
| 7    | 15. 59,14  | 2. 27,14  | 8,78    | 15. 51,59  | 2. 24,84  | 8,71    | 15. 46,70  | 2. 23,35  | 8,67    | 23 |
| 8    | 15. 58,87  | 2. 27,06  | 8,78    | 15. 51,37  | 2. 24,77  | 8,71    | 15. 46,60  | 2. 23,32  | 8,66    | 22 |
| 9    | 15. 58,59  | 2. 26,97  | 8,77    | 15. 51,16  | 2. 24,70  | 8,71    | 15. 46,50  | 2. 23,29  | 8,66    | 21 |
| 10   | 15. 58,32  | 2. 26,89  | 8,77    | 15. 50,96  | 2. 24,64  | 8,70    | 15. 46,41  | 2. 23,26  | 8,66    | 20 |
| 11   | 15. 58,05  | 2. 26,80  | 8,77    | 15. 50,75  | 2. 24,58  | 8,70    | 15. 46,32  | 2. 23,23  | 8,66    | 19 |
| 12   | 15. 57,77  | 2. 26,72  | 8,77    | 15. 50,55  | 2. 24,52  | 8,70    | 15. 46,24  | 2. 23,20  | 8,66    | 18 |
| 13   | 15. 57,50  | 2. 26,64  | 8,77    | 15. 50,35  | 2. 24,46  | 8,70    | 15. 46,16  | 2. 23,18  | 8,66    | 17 |
| 14   | 15. 57,23  | 2. 26,56  | 8,77    | 15. 50,15  | 2. 24,40  | 8,70    | 15. 46,08  | 2. 23,16  | 8,66    | 16 |
| 15   | 15. 56,96  | 2. 26,47  | 8,77    | 15. 49,96  | 2. 24,34  | 8,69    | 15. 46,01  | 2. 23,14  | 8,66    | 15 |
| 16   | 15. 56,70  | 2. 26,39  | 8,76    | 15. 49,77  | 2. 24,28  | 8,69    | 15. 45,95  | 2. 23,12  | 8,66    | 14 |
| 17   | 15. 56,44  | 2. 26,31  | 8,75    | 15. 49,59  | 2. 24,23  | 8,69    | 15. 45,88  | 2. 23,10  | 8,66    | 13 |
| 18   | 15. 56,17  | 2. 26,23  | 8,75    | 15. 49,41  | 2. 24,17  | 8,69    | 15. 45,83  | 2. 23,09  | 8,66    | 12 |
| 19   | 15. 55,91  | 2. 26,15  | 8,75    | 15. 49,23  | 2. 24,12  | 8,69    | 15. 45,78  | 2. 23,07  | 8,66    | 11 |
| 20   | 15. 55,65  | 2. 26,07  | 8,75    | 15. 49,06  | 2. 24,06  | 8,69    | 15. 45,73  | 2. 23,05  | 8,66    | 10 |
| 21   | 15. 55,39  | 2. 25,99  | 8,74    | 15. 48,89  | 2. 24,01  | 8,69    | 15. 45,68  | 2. 23,04  | 8,66    | 9  |
| 22   | 15. 55,13  | 2. 25,91  | 8,74    | 15. 48,72  | 2. 23,96  | 8,68    | 15. 45,64  | 2. 23,03  | 8,66    | 8  |
| 23   | 15. 54,88  | 2. 25,84  | 8,74    | 15. 48,56  | 2. 23,91  | 8,68    | 15. 45,61  | 2. 23,02  | 8,66    | 7  |
| 24   | 15. 54,63  | 2. 25,76  | 8,74    | 15. 48,40  | 2. 23,86  | 8,68    | 15. 45,58  | 2. 23,01  | 8,65    | 6  |
| 25   | 15. 54,38  | 2. 25,68  | 8,74    | 15. 48,24  | 2. 23,82  | 8,68    | 15. 45,55  | 2. 23,00  | 8,65    | 5  |
| 26   | 15. 54,14  | 2. 25,61  | 8,73    | 15. 48,09  | 2. 23,77  | 8,68    | 15. 45,53  | 2. 23,00  | 8,65    | 4  |
| 27   | 15. 53,89  | 2. 25,53  | 8,73    | 15. 47,94  | 2. 23,73  | 8,68    | 15. 45,52  | 2. 22,99  | 8,65    | 3  |
| 28   | 15. 53,65  | 2. 25,46  | 8,73    | 15. 47,80  | 2. 23,68  | 8,68    | 15. 45,51  | 2. 22,99  | 8,65    | 2  |
| 29   | 15. 53,41  | 2. 25,39  | 8,73    | 15. 47,66  | 2. 23,64  | 8,67    | 15. 45,50  | 2. 22,99  | 8,65    | 1  |
| 30   | 15. 53,17  | 2. 25,32  | 8,72    | 15. 47,53  | 2. 23,60  | 8,67    | 15. 45,50  | 2. 22,99  | 8,65    | 0  |
|      | Sig. VIII. |           |         | Sig. VII.  |           |         | Sig. VI.   |           |         | D  |



TABLE XXV.

Semi-diameter of the Sun in Sidereal and Mean Time, and the Solar Nutation.

| Months. | Sun's True Longitude. | Sidereal Time. | Diff. | Mean Time. | Solar Nutation. |        | Months.  | Sun's True Longitude. | Sidereal Time. | Diff. | Mean Time. | Solar Nutation. |        |
|---------|-----------------------|----------------|-------|------------|-----------------|--------|----------|-----------------------|----------------|-------|------------|-----------------|--------|
|         |                       |                |       |            | Long.           | Obliq. |          |                       |                |       |            | Long.           | Obliq. |
| 21 Mar. | Os. 0°                | i. 4,5         |       | i. 4,3     | -0,0            | +0,4   | 23 Sept. | VI <sup>s</sup> . 0°  | i. 4,1         |       | i. 3,9     | -0,0            | +0,4   |
| 26      | 5                     | 4,4            | 1     | 4,2        | 0,2             | 0,4    | 28       | 5                     | 4,2            | 1     | 4,0        | 0,2             | 0,4    |
| 31      | 10                    | 4,4            | 0     | 4,2        | 0,3             | 0,4    | 3 Oct.   | 10                    | 4,4            | 2     | 4,2        | 0,3             | 0,4    |
| 5 April | 15                    | 4,5            | 1     | 4,3        | 0,5             | 0,4    | 9        | 15                    | 4,7            | 3     | 4,5        | 0,5             | 0,4    |
| 10      | 20                    | 4,7            | 2     | 4,5        | 0,6             | 0,3    | 14       | 20                    | 5,1            | 4     | 4,9        | 0,6             | 0,3    |
| 15      | 25                    | 4,9            | 2     | 4,7        | 0,7             | 0,3    | 19       | 25                    | 5,5            | 4     | 5,3        | 0,7             | 0,3    |
| 20      | I. 0                  | 5,2            | 3     | 5,0        | 0,8             | 0,2    | 24       | VII. 0                | 6,0            | 5     | 5,8        | 0,8             | 0,2    |
| 25      |                       |                | 4     |            |                 |        |          |                       |                | 5     |            |                 |        |
| 1 May   | I. 5                  | 5,6            | 4     | 5,4        | -0,9            | +0,1   | 29       | VII. 5                | 6,5            | 6     | 6,3        | -0,9            | +0,1   |
| 6       | 10                    | 6,0            | 4     | 5,8        | 1,0             | 0,1    | 3 Nov.   | 10                    | 7,1            | 6     | 6,9        | 1,0             | 0,1    |
| 11      | 15                    | 6,4            | 4     | 6,2        | 1,0             | 0,0    | 8        | 15                    | 7,7            | 6     | 7,5        | 1,0             | 0,0    |
| 16      | 20                    | 6,8            | 4     | 6,6        | 1,0             | -0,1   | 13       | 20                    | 8,3            | 5     | 8,1        | 1,0             | -0,1   |
| 21      | 25                    | 7,2            | 4     | 7,0        | 0,9             | 0,1    | 18       | 25                    | 8,8            | 6     | 8,6        | 0,9             | 0,1    |
|         | II. 0                 | 7,6            | 4     | 7,4        | 0,9             | 0,2    | 22       | VIII. 0               | 9,4            | 6     | 9,2        | 0,9             | 0,2    |
| 27      |                       |                | 4     |            |                 |        |          |                       |                | 5     |            |                 |        |
| 1 June  | II. 5                 | 8,0            | 3     | 7,8        | -0,8            | -0,3   | 7        | VIII. 5               | 9,9            | 4     | 9,7        | -0,8            | -0,3   |
| 6       | 10                    | 8,3            | 2     | 8,1        | 0,7             | 0,3    | 2 Dec.   | 10                    | 10,3           | 4     | 10,1       | 0,7             | 0,3    |
| 11      | 15                    | 8,5            | 2     | 8,3        | 0,5             | 0,4    | 7        | 15                    | 10,7           | 4     | 10,5       | 0,5             | 0,4    |
| 16      | 20                    | 8,7            | 1     | 8,5        | 0,3             | 0,4    | 12       | 20                    | 11,0           | 3     | 10,8       | 0,3             | 0,4    |
| 22      | 25                    | 8,8            | 1     | 8,6        | 0,2             | 0,4    | 7        | 25                    | 11,1           | 1     | 10,9       | 0,2             | 0,4    |
|         | III. 0                | 8,9            | 1     | 8,7        | 0,0             | 0,4    | 12       | IX. 0                 | 11,2           | 1     | 11,0       | 0,0             | 0,4    |
| 27      |                       |                | 1     |            |                 |        |          |                       |                | 1     |            |                 |        |
| 2 July  | III. 5                | 8,8            | 1     | 8,6        | +0,2            | -0,4   | 27       | IX. 5                 | 11,1           | 1     | 11,0       | +0,2            | -0,4   |
| 7       | 10                    | 8,7            | 2     | 8,5        | 0,3             | 0,4    | 1 Jan.   | 10                    | 11,0           | 2     | 10,8       | 0,3             | 0,4    |
| 13      | 15                    | 8,5            | 3     | 8,3        | 0,5             | 0,4    | 6        | 15                    | 10,8           | 3     | 10,6       | 0,5             | 0,4    |
| 18      | 20                    | 8,2            | 4     | 8,0        | 0,7             | 0,3    | 11       | 20                    | 10,5           | 4     | 10,3       | 0,7             | 0,3    |
| 23      | 25                    | 7,8            | 4     | 7,6        | 0,8             | 0,3    | 16       | 25                    | 10,1           | 5     | 9,9        | 0,8             | 0,3    |
|         | IV. 0                 | 7,4            | 4     | 7,2        | 0,9             | 0,2    | 20       | X. 0                  | 9,6            | 5     | 9,4        | 0,9             | 0,2    |
| 28      |                       |                | 4     |            |                 |        |          |                       |                | 5     |            |                 |        |
| 3 Aug.  | IV. 5                 | 7,0            | 5     | 6,8        | +0,9            | -0,1   | 25       | X. 5                  | 9,1            | 6     | 8,9        | +0,9            | -0,1   |
| 8       | 10                    | 6,5            | 4     | 6,3        | 1,0             | 0,1    | 30       | 10                    | 8,5            | 6     | 8,3        | 1,0             | 0,1    |
| 13      | 15                    | 6,1            | 4     | 5,9        | 1,0             | 0,0    | 4 Feb.   | 15                    | 7,9            | 6     | 7,7        | 1,0             | 0,0    |
| 18      | 20                    | 5,7            | 4     | 5,5        | 1,0             | +0,1   | 9        | 20                    | 7,4            | 5     | 7,2        | 1,0             | +0,1   |
| 23      | 25                    | 5,3            | 4     | 5,1        | 0,9             | 0,1    | 14       | 25                    | 6,8            | 6     | 6,6        | 0,9             | 0,1    |
|         | V. 0                  | 4,9            | 4     | 4,7        | 0,9             | 0,2    | 19       | XI. 0                 | 6,3            | 5     | 6,1        | 0,9             | 0,2    |
| 29      |                       |                | 3     |            |                 |        |          |                       |                | 5     |            |                 |        |
| 3 Sept. | V. 5                  | 4,6            | 3     | 4,4        | +0,8            | +0,3   | 24       | XI. 5                 | 5,8            | 4     | 5,6        | +0,8            | +0,3   |
| 8       | 10                    | 4,3            | 2     | 4,1        | 0,7             | 0,3    | 1 Mar.   | 10                    | 5,4            | 3     | 5,2        | 0,7             | 0,3    |
| 13      | 15                    | 4,1            | 1     | 3,9        | 0,5             | 0,4    | 6        | 15                    | 5,1            | 3     | 4,9        | 0,5             | 0,4    |
| 18      | 20                    | 4,0            | 0     | 3,8        | 0,3             | 0,4    | 11       | 20                    | 4,8            | 3     | 4,6        | 0,3             | 0,4    |
| 23      | 25                    | 4,0            | 0     | 3,8        | 0,2             | 0,4    | 16       | 25                    | 4,6            | 2     | 4,4        | 0,2             | 0,4    |
|         | VI. 0                 | 4,1            | 1     | 3,9        | +0,0            | +0,4   | 21       | XII. 0                | 4,5            | 1     | 4,3        | +0,0            | +0,4   |



TABLE XXVI.

Motion of the Sun in Latitude.

| Arg. | A+B+N  | 2B-C   | 3C-4B  | B-2E   | Arg. | A+B+N  | 2B-C   | 3C-4B  | B-2E   |
|------|--------|--------|--------|--------|------|--------|--------|--------|--------|
| 0    | - 0,00 | + 0,10 | + 0,24 | + 0,16 | 500  | + 0,00 | - 0,10 | - 0,24 | - 0,16 |
| 10   | 0,04   | 0,10   | 0,25   | 0,16   | 510  | 0,04   | 0,10   | 0,25   | 0,16   |
| 20   | 0,08   | 0,10   | 0,25   | 0,16   | 520  | 0,08   | 0,10   | 0,25   | 0,16   |
| 30   | 0,12   | 0,09   | 0,25   | 0,16   | 530  | 0,12   | 0,09   | 0,25   | 0,16   |
| 40   | 0,16   | 0,09   | 0,25   | 0,16   | 540  | 0,16   | 0,09   | 0,25   | 0,16   |
| 50   | 0,20   | 0,09   | 0,25   | 0,15   | 550  | 0,20   | 0,09   | 0,25   | 0,15   |
| 60   | - 0,24 | + 0,08 | + 0,25 | + 0,14 | 560  | + 0,24 | - 0,08 | - 0,25 | 0,14   |
| 70   | 0,28   | 0,08   | 0,25   | 0,14   | 570  | 0,28   | 0,08   | 0,25   | 0,14   |
| 80   | 0,32   | 0,08   | 0,24   | 0,14   | 580  | 0,32   | 0,08   | 0,24   | 0,13   |
| 90   | 0,36   | 0,07   | 0,24   | 0,13   | 590  | 0,36   | 0,07   | 0,24   | 0,13   |
| 100  | 0,40   | 0,07   | 0,23   | 0,13   | 600  | 0,40   | 0,07   | 0,23   | 0,13   |
| 110  | - 0,44 | + 0,06 | + 0,23 | + 0,12 | 610  | + 0,44 | - 0,06 | - 0,23 | - 0,12 |
| 120  | 0,47   | 0,06   | 0,22   | 0,11   | 620  | 0,47   | 0,06   | 0,22   | 0,11   |
| 130  | 0,50   | 0,05   | 0,21   | 0,10   | 630  | 0,50   | 0,05   | 0,21   | 0,10   |
| 140  | 0,53   | 0,04   | 0,20   | 0,09   | 640  | 0,53   | 0,04   | 0,20   | 0,09   |
| 150  | 0,56   | 0,04   | 0,19   | 0,08   | 650  | 0,56   | 0,04   | 0,19   | 0,08   |
| 160  | - 0,58 | + 0,03 | + 0,18 | + 0,07 | 660  | + 0,58 | - 0,03 | - 0,18 | - 0,07 |
| 170  | 0,60   | 0,02   | 0,17   | 0,06   | 670  | 0,60   | 0,02   | 0,17   | 0,06   |
| 180  | 0,62   | 0,02   | 0,16   | 0,05   | 680  | 0,62   | 0,02   | 0,16   | 0,05   |
| 190  | 0,64   | 0,01   | 0,15   | 0,04   | 690  | 0,64   | 0,01   | 0,15   | 0,04   |
| 200  | 0,65   | + 0,01 | 0,14   | 0,03   | 700  | 0,65   | - 0,01 | 0,14   | 0,03   |
| 210  | - 0,66 | - 0,00 | + 0,12 | + 0,02 | 710  | + 0,66 | 0,00   | - 0,12 | - 0,02 |
| 220  | 0,66   | 0,01   | 0,11   | 0,01   | 720  | 0,66   | + 0,01 | 0,11   | - 0,01 |
| 230  | 0,67   | 0,01   | 0,09   | 0,00   | 730  | 0,67   | 0,01   | 0,09   | 0,00   |
| 240  | 0,67   | 0,02   | 0,08   | - 0,01 | 740  | 0,67   | 0,02   | 0,08   | + 0,01 |
| 250  | 0,68   | 0,03   | 0,06   | 0,02   | 750  | 0,68   | 0,03   | 0,06   | 0,02   |
| 260  | - 0,68 | - 0,03 | + 0,05 | - 0,03 | 760  | + 0,68 | + 0,03 | - 0,05 | + 0,03 |
| 270  | 0,67   | 0,04   | 0,03   | 0,04   | 770  | 0,67   | 0,04   | 0,03   | 0,04   |
| 280  | 0,67   | 0,04   | 0,02   | 0,05   | 780  | 0,67   | 0,04   | - 0,02 | 0,05   |
| 290  | 0,66   | 0,05   | 0,00   | 0,06   | 790  | 0,66   | 0,05   | 0,00   | 0,06   |
| 300  | 0,65   | 0,06   | - 0,01 | 0,07   | 800  | 0,65   | 0,06   | + 0,01 | 0,07   |
| 310  | - 0,64 | - 0,06 | - 0,03 | - 0,08 | 810  | + 0,64 | + 0,06 | + 0,03 | + 0,08 |
| 320  | 0,62   | 0,07   | 0,04   | 0,09   | 820  | 0,62   | 0,07   | 0,04   | 0,09   |
| 330  | 0,60   | 0,07   | 0,06   | 0,10   | 830  | 0,60   | 0,07   | 0,06   | 0,10   |
| 340  | 0,58   | 0,08   | 0,07   | 0,11   | 840  | 0,58   | 0,08   | 0,07   | 0,11   |
| 350  | 0,56   | 0,08   | 0,09   | 0,11   | 850  | 0,56   | 0,08   | 0,09   | 0,11   |
| 360  | - 0,53 | - 0,09 | - 0,10 | - 0,12 | 860  | + 0,53 | + 0,09 | + 0,10 | + 0,12 |
| 370  | 0,50   | 0,09   | 0,12   | 0,13   | 870  | 0,50   | 0,09   | 0,12   | 0,13   |
| 380  | 0,47   | 0,09   | 0,13   | 0,14   | 880  | 0,47   | 0,09   | 0,13   | 0,14   |
| 390  | 0,44   | 0,10   | 0,15   | 0,14   | 890  | 0,44   | 0,10   | 0,15   | 0,14   |
| 400  | 0,40   | 0,10   | 0,16   | 0,15   | 900  | 0,40   | 0,10   | 0,16   | 0,15   |
| 410  | - 0,36 | - 0,10 | - 0,17 | - 0,15 | 910  | + 0,36 | + 0,10 | + 0,17 | + 0,15 |
| 420  | 0,32   | 0,10   | 0,18   | 0,16   | 920  | 0,32   | 0,10   | 0,18   | 0,16   |
| 430  | 0,28   | 0,10   | 0,19   | 0,16   | 930  | 0,28   | 0,10   | 0,19   | 0,16   |
| 440  | 0,24   | 0,10   | 0,20   | 0,16   | 940  | 0,24   | 0,10   | 0,20   | 0,16   |
| 450  | 0,20   | 0,11   | 0,21   | 0,16   | 950  | 0,20   | 0,11   | 0,21   | 0,16   |
| 460  | - 0,16 | - 0,11 | - 0,22 | - 0,16 | 960  | + 0,16 | + 0,11 | + 0,22 | + 0,16 |
| 470  | 0,12   | 0,11   | 0,23   | 0,16   | 970  | 0,12   | 0,11   | 0,23   | 0,16   |
| 480  | 0,08   | 0,10   | 0,23   | 0,16   | 980  | 0,08   | 0,10   | 0,23   | 0,16   |
| 490  | 0,04   | 0,10   | 0,24   | 0,16   | 990  | 0,04   | 0,10   | 0,24   | 0,16   |
| 500  | - 0,00 | - 0,10 | - 0,24 | - 0,16 | 1000 | + 0,00 | 0,10   | + 0,24 | + 0,16 |



TABLE XXVII.

Motion of the Sun in Latitude.

| Longit.<br>of the<br>Sun. | Corrections of the |                      |                        | Longit.<br>of the<br>Sun. | Corrections of the |                      |                        |
|---------------------------|--------------------|----------------------|------------------------|---------------------------|--------------------|----------------------|------------------------|
|                           | Longitude.<br>±    | Right<br>Ascen.<br>± | Declina-<br>tion.<br>± |                           | Longitude.<br>±    | Right<br>Ascen.<br>± | Declina-<br>tion.<br>± |
|                           |                    |                      |                        |                           |                    |                      |                        |
| O <sup>s</sup> . 0°       | " 0,43             | " 0,40               | " 0,92                 | VI <sup>s</sup> . 0°      | " 0,43             | " 0,40               | " 0,92                 |
| 5                         | 0,43               | 0,40                 | 0,92                   | 5                         | 0,43               | 0,40                 | 0,92                   |
| 10                        | 0,43               | 0,39                 | 0,92                   | 10                        | 0,43               | 0,39                 | 0,92                   |
| 15                        | 0,42               | 0,39                 | 0,93                   | 15                        | 0,42               | 0,39                 | 0,93                   |
| 20                        | 0,41               | 0,38                 | 0,93                   | 20                        | 0,41               | 0,38                 | 0,93                   |
| 25                        | 0,39               | 0,37                 | 0,93                   | 25                        | 0,39               | 0,37                 | 0,93                   |
| I. 0                      | 0,38               | 0,36                 | 0,94                   | VII. 0                    | 0,38               | 0,36                 | 0,94                   |
| 5                         | 0,36               | 0,34                 | 0,94                   | 5                         | 0,36               | 0,34                 | 0,94                   |
| 10                        | 0,33               | 0,33                 | 0,95                   | 10                        | 0,33               | 0,33                 | 0,95                   |
| 15                        | 0,31               | 0,31                 | 0,96                   | 15                        | 0,31               | 0,31                 | 0,96                   |
| 20                        | 0,28               | 0,28                 | 0,96                   | 20                        | 0,28               | 0,28                 | 0,96                   |
| 25                        | 0,25               | 0,26                 | 0,97                   | 25                        | 0,25               | 0,26                 | 0,97                   |
| II. 0                     | 0,22               | 0,23                 | 0,97                   | VIII. 0                   | 0,22               | 0,23                 | 0,97                   |
| 5                         | 0,18               | 0,19                 | 0,98                   | 5                         | 0,18               | 0,19                 | 0,98                   |
| 10                        | 0,15               | 0,16                 | 0,99                   | 10                        | 0,15               | 0,16                 | 0,99                   |
| 15                        | 0,11               | 0,12                 | 0,99                   | 15                        | 0,11               | 0,12                 | 0,99                   |
| 20                        | 0,08               | 0,08                 | 1,00                   | 20                        | 0,08               | 0,08                 | 1,00                   |
| 25                        | 0,04               | 0,04                 | 1,00                   | 25                        | 0,04               | 0,04                 | 1,00                   |
| III. 0                    | 0,00               | 0,00                 | 1,00                   | IX. 0                     | 0,00               | 0,00                 | 1,00                   |
| 5                         | - 0,04             | - 0,04               | 1,00                   | 5                         | + 0,04             | + 0,04               | 1,00                   |
| 10                        | 0,08               | 0,08                 | 0,99                   | 10                        | 0,08               | 0,08                 | 0,99                   |
| 15                        | 0,11               | 0,12                 | 0,99                   | 15                        | 0,11               | 0,12                 | 0,99                   |
| 20                        | 0,15               | 0,16                 | 0,99                   | 20                        | 0,15               | 0,16                 | 0,99                   |
| 25                        | 0,18               | 0,19                 | 0,98                   | 25                        | 0,18               | 0,19                 | 0,98                   |
| IV. 0                     | 0,22               | 0,23                 | 0,97                   | X. 0                      | 0,22               | 0,23                 | 0,97                   |
| 5                         | 0,25               | 0,26                 | 0,97                   | 5                         | 0,25               | 0,26                 | 0,97                   |
| 10                        | 0,28               | 0,28                 | 0,96                   | 10                        | 0,28               | 0,28                 | 0,96                   |
| 15                        | 0,31               | 0,31                 | 0,96                   | 15                        | 0,31               | 0,31                 | 0,96                   |
| 20                        | 0,33               | 0,33                 | 0,95                   | 20                        | 0,33               | 0,33                 | 0,95                   |
| 25                        | 0,36               | 0,34                 | 0,94                   | 25                        | 0,36               | 0,34                 | 0,94                   |
| V. 0                      | 0,38               | 0,36                 | 0,94                   | XI. 0                     | 0,38               | 0,36                 | 0,94                   |
| 5                         | 0,39               | 0,37                 | 0,93                   | 5                         | 0,39               | 0,37                 | 0,93                   |
| 10                        | 0,41               | 0,38                 | 0,93                   | 10                        | 0,41               | 0,38                 | 0,93                   |
| 15                        | 0,42               | 0,39                 | 0,93                   | 15                        | 0,42               | 0,39                 | 0,93                   |
| 20                        | 0,43               | 0,39                 | 0,92                   | 20                        | 0,43               | 0,39                 | 0,92                   |
| 25                        | 0,43               | 0,40                 | 0,92                   | 25                        | 0,43               | 0,40                 | 0,92                   |
| VI. 0                     | 0,43               | 0,40                 | 0,92                   | XII. 0                    | 0,43               | 0,40                 | 0,92                   |



ARGUMENT. Sun's True Longitude.

| Long.                                   | Motion<br>in<br>Long. | Diff. | Motion<br>in Right<br>Ascens. | Diff. | Motion<br>in<br>Declin. | Diff. | Long.                                    | Motion<br>in<br>Long. | Diff. | Motion<br>in Right<br>Ascens. | Diff. | Motion<br>in<br>Declin. | Diff. |
|-----------------------------------------|-----------------------|-------|-------------------------------|-------|-------------------------|-------|------------------------------------------|-----------------------|-------|-------------------------------|-------|-------------------------|-------|
| O <sup>s</sup> .<br>0°<br>5<br>10<br>15 | 148,77                | 0,43  | 136,46                        | 0,23  | 59,23                   | 0,36  | VI <sup>s</sup> .<br>0°<br>5<br>10<br>15 | 147,05                | 0,43  | 134,89                        | 0,76  | 58,55                   | 0,2   |
|                                         | 148,34                | 0,43  | 136,23                        | +0,09 | 58,87                   | 0,74  |                                          | 147,48                | 0,43  | 135,25                        | 0,68  | 58,53                   | 0,40  |
|                                         | 147,91                | 0,43  | 136,32                        | 0,41  | 58,13                   | 1,11  |                                          | 147,91                | 0,43  | 136,33                        | 1,21  | 58,13                   | 0,78  |
|                                         | 147,48                | 0,43  | 136,73                        | 0,71  | 57,02                   | 1,49  |                                          | 148,34                | 0,43  | 137,54                        | 1,51  | 57,35                   | 1,17  |
| I.<br>20<br>25<br>0                     | 147,05                | 0,42  | 137,44                        | 0,98  | 55,53                   | 1,85  | VII.<br>20<br>25<br>0                    | 148,77                | 0,43  | 139,05                        | 1,81  | 56,18                   | 1,56  |
|                                         | 146,63                | 0,41  | 138,42                        | 1,23  | 53,68                   | 2,23  |                                          | 149,20                | 0,41  | 140,86                        | 2,02  | 54,62                   | 1,94  |
|                                         | 146,22                | 0,40  | 139,65                        | 1,47  | 51,45                   | 2,60  |                                          | 149,61                | 0,41  | 142,88                        | 2,31  | 52,66                   | 2,38  |
|                                         | 145,82                | 0,38  | 141,12                        | 1,65  | 48,85                   | 2,96  |                                          | 150,02                | 0,38  | 145,19                        | 2,45  | 50,28                   | 2,81  |
| II.<br>5<br>10<br>15                    | 145,44                | 0,36  | 142,77                        | 1,76  | 45,89                   | 3,33  | VIII.<br>5<br>10<br>15                   | 150,40                | 0,37  | 147,64                        | 2,57  | 47,46                   | 3,22  |
|                                         | 145,08                | 0,34  | 144,53                        | 1,85  | 42,56                   | 3,67  |                                          | 150,77                | 0,35  | 150,21                        | 2,63  | 44,23                   | 3,62  |
|                                         | 144,74                | 0,32  | 146,38                        | 1,87  | 38,89                   | 4,00  |                                          | 151,12                | 0,32  | 152,84                        | 2,61  | 40,61                   | 4,03  |
|                                         | 144,42                | 0,29  | 148,25                        | 1,81  | 34,89                   | 4,32  |                                          | 151,44                | 0,30  | 155,45                        | 2,53  | 36,58                   | 4,40  |
| III.<br>20<br>25<br>0                   | 144,13                | 0,26  | 150,06                        | 1,67  | 30,57                   | 4,61  | IX.<br>20<br>25<br>0                     | 151,74                | 0,27  | 157,98                        | 2,33  | 32,18                   | 4,75  |
|                                         | 143,87                | 0,23  | 151,73                        | 1,48  | 25,96                   | 4,87  |                                          | 152,01                | 0,23  | 160,31                        | 2,08  | 27,43                   | 5,08  |
|                                         | 143,64                | 0,20  | 153,21                        | 1,21  | 21,09                   | 5,08  |                                          | 152,24                | 0,22  | 162,39                        | 1,73  | 22,35                   | 5,32  |
|                                         | 143,44                | 0,16  | 154,42                        | 0,88  | 16,01                   | 5,24  |                                          | 152,46                | 0,16  | 164,12                        | 1,31  | 17,03                   | 5,56  |
| IV.<br>20<br>25<br>0                    | 143,28                | 0,13  | 155,30                        | 0,53  | 10,77                   | 5,36  | X.<br>20<br>25<br>0                      | 152,62                | 0,13  | 165,43                        | 0,85  | 11,47                   | 5,70  |
|                                         | 143,15                | 0,09  | 155,83                        | 0,12  | 5,41                    | 5,41  |                                          | 152,75                | 0,09  | 166,28                        | 0,33  | 5,77                    | 5,77  |
|                                         | 143,06                | 0,06  | 155,95                        | 0,28  | 0,00                    | 5,41  |                                          | 152,84                | 0,06  | 166,61                        | 0,17  | 0,00                    | 5,78  |
|                                         | 143,00                | 0,02  | 155,67                        | 0,68  | 5,41                    | 5,34  |                                          | 152,90                | 0,02  | 166,44                        | 0,68  | 5,78                    | 5,71  |
| V.<br>5<br>10<br>15                     | 142,98                | 0,02  | 154,99                        | 1,04  | 10,75                   | 5,21  | XI.<br>5<br>10<br>15                     | 152,92                | 0,02  | 165,76                        | 1,16  | 11,49                   | 5,58  |
|                                         | 143,00                | 0,06  | 153,95                        | 1,34  | 15,96                   | 5,05  |                                          | 152,90                | 0,06  | 164,60                        | 1,57  | 17,07                   | 5,37  |
|                                         | 143,06                | 0,09  | 152,61                        | 1,64  | 21,01                   | 4,82  |                                          | 152,84                | 0,10  | 163,03                        | 1,95  | 22,44                   | 5,12  |
|                                         | 143,15                | 0,13  | 150,97                        | 1,80  | 25,83                   | 4,56  |                                          | 152,74                | 0,13  | 161,08                        | 2,19  | 27,56                   | 4,80  |
| VI.<br>20<br>25<br>0                    | 143,28                | 0,16  | 149,17                        | 1,93  | 30,39                   | 4,25  | XII.<br>20<br>25<br>0                    | 152,61                | 0,16  | 158,89                        | 2,40  | 32,36                   | 4,47  |
|                                         | 143,44                | 0,20  | 147,24                        | 1,97  | 34,64                   | 3,96  |                                          | 152,45                | 0,21  | 156,49                        | 2,51  | 36,83                   | 4,08  |
|                                         | 143,64                | 0,23  | 145,27                        | 1,92  | 38,60                   | 3,61  |                                          | 152,24                | 0,23  | 153,98                        | 2,54  | 40,91                   | 3,69  |
|                                         | 143,87                | 0,26  | 143,35                        | 1,87  | 42,21                   | 3,26  |                                          | 152,01                | 0,27  | 151,44                        | 2,49  | 44,60                   | 3,28  |
| VII.<br>20<br>25<br>0                   | 144,13                | 0,29  | 141,48                        | 1,71  | 45,47                   | 2,91  | VIII.<br>20<br>25<br>0                   | 151,74                | 0,30  | 148,95                        | 2,39  | 47,88                   | 2,85  |
|                                         | 144,42                | 0,32  | 139,77                        | 1,55  | 48,38                   | 2,54  |                                          | 151,44                | 0,32  | 146,56                        | 2,24  | 50,73                   | 2,44  |
|                                         | 144,74                | 0,34  | 138,22                        | 1,26  | 50,92                   | 2,19  |                                          | 151,12                | 0,34  | 144,32                        | 1,98  | 53,17                   | 2,02  |
|                                         | 145,08                | 0,36  | 136,96                        | 1,02  | 53,11                   | 1,81  |                                          | 150,78                | 0,36  | 142,34                        | 1,77  | 55,19                   | 1,61  |
| VIII.<br>5<br>10<br>15                  | 145,44                | 0,38  | 135,94                        | 0,74  | 54,92                   | 1,46  | IX.<br>5<br>10<br>15                     | 150,42                | 0,39  | 140,57                        | 1,48  | 56,80                   | 1,20  |
|                                         | 145,82                | 0,40  | 135,20                        | 0,43  | 56,38                   | 1,09  |                                          | 150,03                | 0,41  | 139,09                        | 1,18  | 58,00                   | 0,81  |
|                                         | 146,22                | 0,41  | 134,77                        | 0,10  | 57,47                   | 0,72  |                                          | 149,62                | 0,42  | 137,91                        | 0,88  | 58,81                   | 0,40  |
|                                         | 146,63                | 0,42  | 134,87                        | 0,02  | 58,19                   | 0,36  |                                          | 149,20                | 0,43  | 137,03                        | 0,57  | 59,21                   | 0,02  |
| IX.<br>20<br>25<br>0                    | 147,05                | 0,43  | 134,89                        | 0,76  | 58,55                   | 0,2   | X.<br>20<br>25<br>0                      | 148,77                | 0,43  | 136,46                        | 0,76  | 58,53                   | 0,40  |
|                                         | 147,48                | 0,43  | 135,25                        | 0,68  | 58,13                   | 0,78  |                                          | 147,91                | 0,43  | 136,33                        | 1,21  | 58,13                   | 0,78  |
|                                         | 147,91                | 0,43  | 136,32                        | 0,41  | 57,02                   | 1,11  |                                          | 148,34                | 0,43  | 137,54                        | 1,51  | 57,35                   | 1,17  |
|                                         | 148,77                | 0,43  | 137,44                        | 0,98  | 55,53                   | 1,85  |                                          | 149,20                | 0,43  | 139,05                        | 1,81  | 56,18                   | 1,56  |
| X.<br>20<br>25<br>0                     | 149,20                | 0,41  | 138,42                        | 1,23  | 53,68                   | 2,23  | XI.<br>20<br>25<br>0                     | 149,61                | 0,41  | 140,86                        | 2,02  | 54,62                   | 1,94  |
|                                         | 149,61                | 0,41  | 139,65                        | 1,47  | 51,45                   | 2,60  |                                          | 149,61                | 0,41  | 142,88                        | 2,31  | 52,66                   | 2,38  |
|                                         | 150,02                | 0,38  | 141,12                        | 1,65  | 48,85                   | 2,96  |                                          | 150,02                | 0,38  | 145,19                        | 2,45  | 50,28                   | 2,81  |
|                                         | 150,40                | 0,37  | 142,77                        | 1,76  | 45,89                   | 3,33  |                                          | 150,40                | 0,37  | 147,64                        | 2,57  | 47,46                   | 3,22  |
| XI.<br>20<br>25<br>0                    | 150,77                | 0,35  | 144,53                        | 1,85  | 42,56                   | 3,67  | XII.<br>20<br>25<br>0                    | 150,77                | 0,35  | 150,21                        | 2,63  | 44,23                   | 3,62  |
|                                         | 151,12                | 0,32  | 146,38                        | 1,87  | 38,89                   | 4,00  |                                          | 151,12                | 0,32  | 152,84                        | 2,61  | 40,61                   | 4,03  |
|                                         | 151,44                | 0,30  | 148,25                        | 1,81  | 34,89                   | 4,32  |                                          | 151,44                | 0,30  | 155,45                        | 2,53  | 36,58                   | 4,40  |
|                                         | 151,74                | 0,27  | 150,06                        | 1,67  | 30,57                   | 4,61  |                                          | 151,74                | 0,27  | 157,98                        | 2,33  | 32,18                   | 4,75  |
| XII.<br>5<br>10<br>15                   | 152,01                | 0,23  | 151,73                        | 1,48  | 25,96                   | 4,87  | XIII.<br>5<br>10<br>15                   | 152,01                | 0,23  | 160,31                        | 2,08  | 27,43                   | 5,08  |
|                                         | 152,24                | 0,22  | 153,21                        | 1,21  | 21,09                   | 5,08  |                                          | 152,24                | 0,22  | 162,39                        | 1,73  | 22,35                   | 5,32  |
|                                         | 152,46                | 0,16  | 154,42                        | 0,88  | 16,01                   | 5,24  |                                          | 152,46                | 0,16  | 164,12                        | 1,31  | 17,03                   | 5,56  |
|                                         | 152,62                | 0,13  | 155,30                        | 0,53  | 10,77                   | 5,36  |                                          | 152,62                | 0,13  | 165,43                        | 0,85  | 11,47                   | 5,70  |
| XIII.<br>20<br>25<br>0                  | 152,75                | 0,09  | 155,83                        | 0,12  | 5,41                    | 5,41  | XIV.<br>20<br>25<br>0                    | 152,75                | 0,09  | 166,28                        | 0,33  | 5,77                    | 5,77  |
|                                         | 152,84                | 0,06  | 155,95                        | 0,28  | 0,00                    | 5,41  |                                          | 152,84                | 0,06  | 166,61                        | 0,17  | 0,00                    | 5,78  |
|                                         | 152,90                | 0,02  | 155,67                        | 0,68  | 5,41                    | 5,34  |                                          | 152,90                | 0,02  | 166,44                        | 0,68  | 5,78                    | 5,71  |
|                                         | 152,92                | 0,02  | 154,99                        | 1,04  | 10,75                   | 5,21  |                                          | 152,92                | 0,02  | 165,76                        | 1,16  | 11,49                   | 5,58  |
| XIV.<br>20<br>25<br>0                   | 152,90                | 0,06  | 153,95                        | 1,34  | 15,96                   | 5,05  | XV.<br>20<br>25<br>0                     | 152,90                | 0,06  | 164,60                        | 1,57  | 17,07                   | 5,37  |
|                                         | 152,84                | 0,10  | 152,61                        | 1,64  | 21,01                   | 4,82  |                                          | 152,84                | 0,10  | 163,03                        | 1,95  | 22,44                   | 5,12  |
|                                         | 152,74                | 0,13  | 150,97                        | 1,80  | 25,83                   | 4,56  |                                          | 152,74                | 0,13  | 161,08                        | 2,19  | 27,56                   | 4,80  |
|                                         | 152,61                | 0,16  | 149,17                        | 1,93  | 30,39                   | 4,25  |                                          | 152,61                | 0,16  | 158,89                        | 2,40  | 32,36                   | 4,47  |
| XV.<br>5<br>10<br>15                    | 152,45                | 0,21  | 147,24                        | 1,97  | 34,64                   | 3,96  | XVI.<br>5<br>10<br>15                    | 152,45                | 0,21  | 156,49                        | 2,51  | 36,83                   | 4,08  |
|                                         | 152,24                | 0,23  | 145,27                        | 1,92  | 38,60                   | 3,61  |                                          | 152,24                | 0,23  | 153,98                        | 2,54  | 40,91                   | 3,69  |
|                                         | 152,01                | 0,27  | 143,35                        | 1,87  | 42,21                   | 3,26  |                                          | 152,01                | 0,27  | 151,44                        | 2,49  | 44,60                   | 3,28  |
|                                         | 151,74                | 0,30  | 141,48                        | 1,71  | 45,47                   | 2,91  |                                          | 151,74                | 0,30  | 148,95                        | 2,39  | 47,88                   | 2,85  |
| XVI.<br>20<br>25<br>0                   | 151,44                | 0,32  | 139,77                        | 1,55  | 48,38                   | 2,54  | XVII.<br>20<br>25<br>0                   | 151,44                | 0,32  | 146,56                        | 2,24  | 50,73                   | 2,44  |
|                                         | 151,12                | 0,34  | 138,22                        | 1,26  | 50,92                   | 2,19  |                                          | 151,12                | 0,34  | 144,32                        | 1,98  | 53,17                   | 2,02  |
|                                         | 150,78                | 0,36  | 136,96                        | 1,02  | 53,11                   | 1,81  |                                          | 150,78                | 0,36  | 142,34                        | 1,77  | 55,19                   | 1,61  |
|                                         | 150,42                | 0,39  | 135,94                        | 0,74  | 54,92                   | 1,46  |                                          | 150,42                | 0,39  | 140,57                        | 1,48  | 56,80                   | 1,20  |
| XVII.<br>20<br>25<br>0                  | 150,03                | 0,41  | 135,20                        | 0,43  | 56,38                   | 1,09  | XVIII.<br>20<br>25<br>0                  | 150,03                | 0,41  | 139,09                        | 1,18  | 58,00                   | 0,81  |
|                                         | 149,62                | 0,42  | 134,77                        | 0,10  | 57,47                   | 0,72  |                                          | 149,62                | 0,42  | 137,91                        | 0,88  | 58,81                   | 0,40  |
|                                         | 149,20                | 0,43  | 134,87                        | 0,02  | 58,19                   | 0,36  |                                          | 149,20                | 0,43  | 137,03                        | 0,57  | 59,21                   | 0,02  |
|                                         | 148,77                | 0,43  | 134,89                        | 0,76  | 58,55                   | 0,2   |                                          | 148,77                | 0,43  | 136,46                        | 0,76  | 58,55                   | 0,2   |



TABLE XXIX.

Equation of Time to convert *Apparent* into *Mean* Time, for 1810,  
with the Secular Variation.

ARGUMENT. Sun's Mean Longitude.

| Deg. | Sig. O. | Diff.   | Secular<br>Variation.<br>± |      | Sig. I. | Diff.     | Secular<br>Variation.<br>+ |       | Sig. II. | Diff.     | Secular<br>Variation.<br>+ |    |
|------|---------|---------|----------------------------|------|---------|-----------|----------------------------|-------|----------|-----------|----------------------------|----|
| 0    | +       | 6. 59,2 | 18,8                       | 2,97 | 25      | - 1. 31,2 | 12,5                       | 4,31  | 24       | - 3. 43,4 | 10,83                      | 18 |
| 1    |         | 6. 40,4 | 18,9                       | 2,72 | 24      | 1. 43,7   | 12,0                       | 4,55  | 24       | 3. 38,9   | 11,01                      | 17 |
| 2    |         | 6. 21,5 | 18,9                       | 2,48 | 24      | 1. 55,7   | 11,4                       | 4,79  | 23       | 3. 33,9   | 11,18                      | 18 |
| 3    |         | 6. 2,6  | 18,8                       | 2,24 | 24      | 2. 7,1    | 10,8                       | 5,02  | 24       | 3. 28,4   | 11,36                      | 17 |
| 4    |         | 5. 43,8 | 18,9                       | 2,00 | 25      | 2. 17,9   | 10,4                       | 5,26  | 23       | 3. 22,3   | 11,53                      | 16 |
| 5    |         | 5. 24,9 | 19,0                       | 1,75 | 24      | 2. 28,3   | 9,8                        | 5,49  | 24       | 3. 15,7   | 11,69                      | 16 |
| 6    |         | 5. 5,9  | 18,8                       | 1,51 | 24      | 2. 38,1   | 9,3                        | 5,73  | 23       | 3. 8,8    | 11,85                      | 16 |
| 7    |         | 4. 47,1 | 18,8                       | 1,27 | 25      | 2. 47,4   | 8,8                        | 5,96  | 23       | 3. 1,1    | 12,01                      | 15 |
| 8    |         | 4. 28,3 | 18,7                       | 1,02 | 24      | 2. 56,2   | 8,3                        | 6,19  | 23       | 2. 53,1   | 12,16                      | 15 |
| 9    |         | 4. 9,6  | 18,6                       | 0,78 | 24      | 3. 4,5    | 7,6                        | 6,42  | 23       | 2. 44,7   | 12,31                      | 14 |
| 10   |         | 3. 51,0 | 18,4                       | 0,54 | 25      | 3. 12,1   | 7,1                        | 6,65  | 23       | 2. 35,9   | 12,45                      | 14 |
| 11   |         | 3. 32,6 | 18,5                       | 0,29 | 24      | 3. 19,2   | 6,6                        | 6,88  | 23       | 2. 26,7   | 12,59                      | 14 |
| 12   |         | 3. 14,1 | 18,3                       | 0,05 | 25      | 3. 25,8   | 5,9                        | 7,11  | 22       | 2. 16,9   | 12,73                      | 13 |
| 13   |         | 2. 55,8 | 18,0                       | 0,20 | 24      | 3. 31,7   | 5,4                        | 7,33  | 23       | 2. 6,9    | 12,86                      | 13 |
| 14   |         | 2. 37,8 | 17,9                       | 0,44 | 24      | 3. 37,1   | 4,9                        | 7,56  | 22       | 1. 56,6   | 12,99                      | 12 |
| 15   |         | 2. 19,9 | 17,6                       | 0,68 | 25      | 3. 42,0   | 4,2                        | 7,78  | 22       | 1. 45,8   | 13,11                      | 12 |
| 16   |         | 2. 2,3  | 17,3                       | 0,93 | 24      | 3. 46,2   | 3,4                        | 8,00  | 22       | 1. 34,6   | 13,23                      | 11 |
| 17   |         | 1. 45,0 | 17,1                       | 1,17 | 24      | 3. 49,6   | 3,0                        | 8,22  | 21       | 1. 23,2   | 13,34                      | 11 |
| 18   |         | 1. 27,9 | 16,9                       | 1,41 | 25      | 3. 52,6   | 2,5                        | 8,43  | 22       | 1. 11,6   | 13,45                      | 10 |
| 19   |         | 1. 11,0 | 16,7                       | 1,66 | 24      | 3. 55,1   | 1,9                        | 8,65  | 20       | 0. 59,7   | 13,55                      | 9  |
| 20   |         | 0. 54,3 | 16,4                       | 1,90 | 24      | 3. 57,0   | 1,3                        | 8,85  | 21       | 0. 47,6   | 13,64                      | 9  |
| 21   |         | 0. 37,9 | 16,0                       | 2,14 | 25      | 3. 58,3   | 0,6                        | 9,06  | 21       | 0. 35,3   | 13,73                      | 9  |
| 22   |         | 0. 21,9 | 15,5                       | 2,39 | 24      | 3. 58,9   | 0,1                        | 9,27  | 21       | 0. 22,8   | 13,82                      | 8  |
| 23   | +       | 0. 6,4  | 15,1                       | 2,63 | 24      | 3. 59,0   | 0,5                        | 9,48  | 20       | - 0. 10,1 | 13,90                      | 8  |
| 24   | -       | 0. 8,7  | 14,7                       | 2,87 | 24      | 3. 58,5   | 1,1                        | 9,68  | 20       | + 0. 2,7  | 13,98                      | 7  |
| 25   |         | 0. 23,4 | 14,3                       | 3,11 | 24      | 3. 57,4   | 1,7                        | 9,88  | 19       | 0. 15,6   | 14,05                      | 6  |
| 26   |         | 0. 37,7 | 13,9                       | 3,35 | 24      | 3. 55,7   | 2,2                        | 10,07 | 20       | 0. 28,7   | 14,11                      | 6  |
| 27   |         | 0. 51,6 | 13,5                       | 3,59 | 24      | 3. 53,5   | 2,8                        | 10,27 | 20       | 0. 41,8   | 14,17                      | 5  |
| 28   |         | 1. 5,1  | 13,2                       | 3,83 | 24      | 3. 50,7   | 3,4                        | 10,47 | 18       | 0. 55,0   | 14,22                      | 5  |
| 29   |         | 1. 18,3 | 12,9                       | 4,07 | 24      | 3. 47,3   | 3,9                        | 10,65 | 18       | 1. 8,1    | 14,27                      | 4  |
| 30   | -       | 1. 31,2 |                            | 4,31 |         | - 3. 43,4 |                            | 10,83 |          | + 1. 21,1 | 14,31                      |    |



## Continuation of TABLE XXIX.

Equation of Time to convert *Apparent* into *Mean* Time, for 1810,  
with the Secular Variation.

ARGUMENT. Sun's Mean Longitude.

| Deg. | Sig. III. | Diff. | Secular<br>Variation.<br>+ |    | Sig. IV.  | Diff. | Secular<br>Variation.<br>+ |    | Sig. V.   | Diff. | Secular<br>Variation.<br>+ |    |
|------|-----------|-------|----------------------------|----|-----------|-------|----------------------------|----|-----------|-------|----------------------------|----|
| 0    | + 1. 21,1 | 13,0  | 14,31                      | 4  | + 5. 59,3 | 2,1   | 13,14                      | 11 | + 2. 46,2 | 15,0  | 8,78                       | 17 |
| 1    | 1. 34,1   | 13,1  | 14,35                      | 3  | 6. 1,4    | 1,6   | 13,03                      | 12 | 2. 31,2   | 15,5  | 8,61                       | 17 |
| 2    | 1. 47,2   | 13,1  | 14,38                      | 2  | 6. 3,0    | 1,2   | 12,91                      | 12 | 2. 15,7   | 15,9  | 8,44                       | 17 |
| 3    | 2. 0,3    | 13,0  | 14,40                      | 2  | 6. 4,2    | 0,6   | 12,79                      | 12 | 1. 59,8   | 16,4  | 8,27                       | 17 |
| 4    | 2. 13,3   | 12,8  | 14,42                      | 2  | 6. 4,8    | 0,1   | 12,67                      | 12 | 1. 43,4   | 16,8  | 8,10                       | 17 |
| 5    | 2. 26,1   | 12,6  | 14,44                      | 1  | 6. 4,7    | 0,7   | 12,55                      | 13 | 1. 26,6   | 17,2  | 7,93                       | 17 |
| 6    | 2. 38,7   | 12,4  | 14,45                      | 0  | 6. 4,0    | 1,4   | 12,42                      | 13 | 1. 9,4    | 17,6  | 7,76                       | 17 |
| 7    | 2. 51,1   | 12,2  | 14,45                      | 0  | 6. 2,6    | 2,0   | 12,29                      | 13 | 0. 51,8   | 18,0  | 7,59                       | 17 |
| 8    | 3. 3,3    | 12,0  | 14,45                      | 1  | 6. 0,6    | 2,5   | 12,16                      | 13 | 0. 33,8   | 18,4  | 7,42                       | 17 |
| 9    | 3. 15,3   | 11,7  | 14,44                      | 1  | 5. 58,1   | 3,3   | 12,03                      | 14 | + 0. 15,4 | 18,6  | 7,25                       | 17 |
| 10   | 3. 27,0   | 11,4  | 14,43                      | 2  | 5. 54,8   | 3,8   | 11,89                      | 14 | - 0. 3,2  | 18,9  | 7,08                       | 17 |
| 11   | 3. 38,4   | 11,1  | 14,41                      | 2  | 5. 51,0   | 4,4   | 11,75                      | 14 | 0. 22,1   | 19,2  | 6,91                       | 17 |
| 12   | 3. 49,5   | 10,8  | 14,39                      | 3  | 5. 46,6   | 5,0   | 11,61                      | 14 | 0. 41,3   | 19,5  | 6,74                       | 18 |
| 13   | 4. 0,3    | 10,5  | 14,36                      | 4  | 5. 41,6   | 5,7   | 11,47                      | 15 | 1. 0,8    | 19,8  | 6,56                       | 17 |
| 14   | 4. 10,8   | 10,1  | 14,32                      | 4  | 5. 35,9   | 6,4   | 11,32                      | 15 | 1. 20,6   | 20,0  | 6,39                       | 18 |
| 15   | 4. 20,9   | 9,7   | 14,28                      | 4  | 5. 29,5   | 6,9   | 11,17                      | 15 | 1. 40,6   | 20,2  | 6,21                       | 17 |
| 16   | 4. 30,6   | 9,4   | 14,24                      | 5  | 5. 22,6   | 7,5   | 11,02                      | 15 | 2. 0,8    | 20,5  | 6,04                       | 17 |
| 17   | 4. 40,0   | 9,0   | 14,19                      | 6  | 5. 15,1   | 8,1   | 10,87                      | 15 | 2. 21,3   | 20,6  | 5,87                       | 18 |
| 18   | 4. 49,0   | 8,5   | 14,13                      | 6  | 5. 7,0    | 8,7   | 10,72                      | 15 | 2. 41,9   | 20,8  | 5,69                       | 17 |
| 19   | 4. 57,5   | 8,1   | 14,07                      | 6  | 4. 58,3   | 9,3   | 10,57                      | 16 | 3. 2,7    | 20,9  | 5,52                       | 18 |
| 20   | 5. 5,6    | 7,6   | 14,01                      | 7  | 4. 49,0   | 9,8   | 10,41                      | 16 | 3. 23,6   | 21,1  | 5,34                       | 18 |
| 21   | 5. 13,2   | 7,4   | 13,94                      | 7  | 4. 39,2   | 10,4  | 10,25                      | 16 | 3. 44,7   | 21,1  | 5,16                       | 18 |
| 22   | 5. 20,6   | 6,9   | 13,87                      | 8  | 4. 28,8   | 10,9  | 10,09                      | 16 | 4. 5,8    | 21,2  | 4,98                       | 17 |
| 23   | 5. 27,5   | 6,2   | 13,79                      | 8  | 4. 17,9   | 11,5  | 9,93                       | 16 | 4. 27,0   | 21,3  | 4,81                       | 18 |
| 24   | 5. 33,7   | 5,7   | 13,71                      | 9  | 4. 6,4    | 12,1  | 9,77                       | 17 | 4. 48,3   | 21,4  | 4,63                       | 18 |
| 25   | 5. 39,4   | 5,1   | 13,62                      | 9  | 3. 54,3   | 12,7  | 9,60                       | 16 | 5. 9,7    | 21,3  | 4,45                       | 18 |
| 26   | 5. 44,5   | 4,5   | 13,53                      | 9  | 3. 41,6   | 13,0  | 9,44                       | 16 | 5. 31,0   | 21,3  | 4,27                       | 18 |
| 27   | 5. 49,0   | 3,9   | 13,44                      | 10 | 3. 28,6   | 13,6  | 9,28                       | 16 | 5. 52,3   | 21,4  | 4,09                       | 18 |
| 28   | 5. 52,9   | 3,4   | 13,34                      | 10 | 3. 15,0   | 14,2  | 9,12                       | 17 | 6. 13,7   | 21,3  | 3,91                       | 18 |
| 29   | 5. 56,3   | 3,0   | 13,24                      | 10 | 3. 0,8    | 14,6  | 8,95                       | 17 | 6. 35,0   | 21,3  | 3,73                       | 19 |
| 30   | + 5. 59,3 |       | 13,14                      |    | + 2. 46,2 |       | 8,78                       |    | - 6. 36,3 |       | 3,54                       |    |



## SOLAR TABLES.

## Continuation of TABLE XXIX.

Equation of Time to convert *Apparent* into *Mean* Time, for 1810,  
with the Secular Variation.

ARGUMENT. Sun's Mean Longitude.

| Deg. | Sig. VI.   | Diff. | Secular<br>Variation.<br>± |    | Sig. VII.  | Diff. | Secular<br>Variation.<br>— |    | Sig. VIII. | Diff. | Secular<br>Variation.<br>— |    |
|------|------------|-------|----------------------------|----|------------|-------|----------------------------|----|------------|-------|----------------------------|----|
| 0    | — 6. 56,3  | 21,2  | 3,54                       | 18 | — 15. 17,8 | 8,8   | 2,56                       | 23 | — 13. 54,9 | 16,0  | 9,64                       | 24 |
| 1    | 7. 17,5    | 21,0  | 3,36                       | 19 | 15. 26,6   | 8,1   | 2,79                       | 23 | 13. 38,9   | 16,8  | 9,88                       | 23 |
| 2    | 7. 38,5    | 20,8  | 3,17                       | 18 | 15. 34,7   | 7,4   | 3,02                       | 23 | 13. 22,1   | 17,5  | 10,11                      | 22 |
| 3    | 7. 59,3    | 20,7  | 2,99                       | 19 | 15. 42,1   | 6,7   | 3,25                       | 23 | 13. 4,6    | 18,2  | 10,33                      | 22 |
| 4    | 8. 20,0    | 20,6  | 2,80                       | 19 | 15. 48,8   | 6,0   | 3,48                       | 23 | 12. 46,4   | 19,1  | 10,55                      | 22 |
| 5    | 8. 40,6    | 20,4  | 2,61                       | 19 | 15. 54,8   | 5,2   | 3,71                       | 23 | 12. 27,3   | 19,9  | 10,77                      | 21 |
| 6    | 9. 1,0     | 20,1  | 2,42                       | 19 | 16. 0,0    | 4,4   | 3,94                       | 24 | 12. 7,4    | 20,6  | 10,98                      | 21 |
| 7    | 9. 21,1    | 19,9  | 2,23                       | 19 | 16. 4,4    | 3,7   | 4,18                       | 23 | 11. 46,8   | 21,3  | 11,19                      | 21 |
| 8    | 9. 41,0    | 19,7  | 2,04                       | 19 | 16. 8,1    | 2,9   | 4,41                       | 24 | 11. 25,5   | 22,0  | 11,40                      | 21 |
| 9    | 10. 0,7    | 19,4  | 1,85                       | 19 | 16. 11,0   | 2,0   | 4,65                       | 24 | 11. 3,5    | 22,7  | 11,61                      | 20 |
| 10   | 10. 20,1   | 19,2  | 1,66                       | 20 | 16. 13,0   | 1,2   | 4,89                       | 24 | 10. 40,8   | 23,4  | 11,81                      | 20 |
| 11   | 10. 39,3   | 18,8  | 1,46                       | 20 | 16. 14,2   | 0,5   | 5,13                       | 24 | 10. 17,4   | 24,0  | 12,01                      | 19 |
| 12   | 10. 58,1   | 18,4  | 1,26                       | 20 | 16. 14,7   | 0,5   | 5,37                       | 24 | 9. 53,4    | 24,5  | 12,20                      | 19 |
| 13   | 11. 16,5   | 18,0  | 1,06                       | 20 | 16. 14,2   | 1,3   | 5,61                       | 24 | 9. 28,9    | 25,2  | 12,39                      | 19 |
| 14   | 11. 34,5   | 17,7  | 0,86                       | 20 | 16. 12,9   | 2,1   | 5,85                       | 24 | 9. 3,7     | 25,8  | 12,58                      | 19 |
| 15   | 11. 52,2   | 17,3  | 0,66                       | 20 | 16. 10,8   | 3,0   | 6,09                       | 24 | 8. 37,9    | 26,4  | 12,77                      | 18 |
| 16   | 12. 9,5    | 16,8  | 0,46                       | 21 | 16. 7,8    | 3,8   | 6,33                       | 24 | 8. 11,5    | 26,9  | 12,95                      | 17 |
| 17   | 12. 26,3   | 16,4  | 0,25                       | 21 | 16. 4,0    | 4,7   | 6,57                       | 24 | 7. 44,6    | 27,3  | 13,12                      | 17 |
| 18   | 12. 42,7   | 16,0  | 0,04                       | 20 | 15. 59,3   | 5,6   | 6,81                       | 24 | 7. 17,3    | 27,6  | 13,29                      | 16 |
| 19   | 12. 58,7   | 15,5  | 0,16                       | 21 | 15. 53,7   | 6,4   | 7,05                       | 24 | 6. 49,7    | 28,1  | 13,45                      | 16 |
| 20   | 13. 14,2   | 14,9  | 0,37                       | 21 | 15. 47,3   | 7,3   | 7,29                       | 24 | 6. 21,6    | 28,5  | 13,61                      | 15 |
| 21   | 13. 29,1   | 14,4  | 0,58                       | 22 | 15. 40,0   | 8,3   | 7,53                       | 24 | 5. 53,1    | 28,8  | 13,76                      | 15 |
| 22   | 13. 43,5   | 13,9  | 0,80                       | 21 | 15. 31,7   | 9,1   | 7,77                       | 24 | 5. 24,3    | 29,2  | 13,91                      | 14 |
| 23   | 13. 57,4   | 13,4  | 1,01                       | 22 | 15. 22,6   | 10,0  | 8,01                       | 24 | 4. 55,1    | 29,5  | 14,05                      | 14 |
| 24   | 14. 10,8   | 12,8  | 1,23                       | 22 | 15. 12,6   | 10,9  | 8,25                       | 24 | 4. 25,6    | 29,7  | 14,19                      | 13 |
| 25   | 14. 23,6   | 12,1  | 1,45                       | 22 | 15. 1,7    | 11,7  | 8,49                       | 23 | 3. 55,9    | 30,0  | 14,32                      | 12 |
| 26   | 14. 35,7   | 11,5  | 1,67                       | 22 | 14. 50,0   | 12,5  | 8,72                       | 24 | 3. 25,9    | 30,1  | 14,44                      | 12 |
| 27   | 14. 47,2   | 10,8  | 1,89                       | 22 | 14. 37,5   | 13,4  | 8,96                       | 23 | 2. 55,8    | 30,3  | 14,56                      | 11 |
| 28   | 14. 58,0   | 10,2  | 2,11                       | 22 | 14. 24,1   | 14,2  | 9,19                       | 23 | 2. 25,5    | 30,5  | 14,67                      | 11 |
| 29   | 15. 8,2    | 9,6   | 2,33                       | 23 | 14. 9,9    | 15,0  | 9,42                       | 22 | 1. 55,0    | 30,3  | 14,78                      | 10 |
| 30   | — 15. 17,8 |       | 2,56                       |    | — 13. 54,9 |       | 9,64                       |    | — 1. 24,7  |       | 14,88                      |    |



## Continuation of TABLE XXIX.

Equation of Time to convert *Apparent* into *Mean* Time, for 1810,  
with the Secular Variation.

ARGUMENT. Sun's Mean Longitude.

| Deg. | Sig. IX.   | Diff. | Secular<br>Variation. |    | Sig. X.    | Diff. | Secular<br>Variation. |    | Sig. XI.  | Diff. | Secular<br>Variation. |    |
|------|------------|-------|-----------------------|----|------------|-------|-----------------------|----|-----------|-------|-----------------------|----|
| 0    | - 1. 24,7  | 30,5  | 14,88                 | 10 | + 11. 36,3 | 17,0  | 14,89                 | 10 | + 14. 6,9 | 7,0   | 9,96                  | 22 |
| 1    | 0. 54,2    | 30,5  | 14,98                 | 9  | 11. 53,3   | 16,2  | 14,79                 | 11 | 13. 59,9  | 7,8   | 9,74                  | 22 |
| 2    | - 0. 23,7  | 30,5  | 15,07                 | 8  | 12. 9,5    | 15,3  | 14,68                 | 11 | 13. 52,1  | 8,5   | 9,52                  | 22 |
| 3    | + 0. 6,8   | 30,5  | 15,15                 | 8  | 12. 24,8   | 14,5  | 14,57                 | 11 | 13. 43,6  | 9,1   | 9,30                  | 22 |
| 4    | 0. 37,2    | 30,4  | 15,23                 | 7  | 12. 39,3   | 13,8  | 14,46                 | 12 | 13. 34,5  | 9,6   | 9,08                  | 22 |
| 5    | 1. 7,5     | 30,3  | 15,30                 | 6  | 12. 53,1   | 13,0  | 14,34                 | 13 | 13. 24,9  | 10,2  | 8,86                  | 22 |
| 6    | 1. 37,6    | 29,9  | 15,36                 | 5  | 13. 6,1    | 12,1  | 14,21                 | 13 | 13. 14,7  | 10,7  | 8,63                  | 22 |
| 7    | 2. 7,5     | 29,7  | 15,41                 | 5  | 13. 18,2   | 11,2  | 14,08                 | 14 | 13. 4,0   | 11,6  | 8,41                  | 23 |
| 8    | 2. 37,2    | 29,5  | 15,46                 | 5  | 13. 29,4   | 10,4  | 13,94                 | 14 | 12. 52,4  | 12,0  | 8,18                  | 22 |
| 9    | 3. 6,7     | 29,3  | 15,51                 | 4  | 13. 39,8   | 9,5   | 13,80                 | 15 | 12. 40,4  | 12,5  | 7,96                  | 23 |
| 10   | 3. 36,0    | 28,9  | 15,55                 | 3  | 13. 49,3   | 8,7   | 13,65                 | 15 | 12. 27,9  | 13,0  | 7,73                  | 24 |
| 11   | 4. 4,9     | 28,6  | 15,58                 | 2  | 13. 58,0   | 7,9   | 13,50                 | 15 | 12. 14,9  | 13,4  | 7,49                  | 23 |
| 12   | 4. 33,5    | 28,3  | 15,60                 | 1  | 14. 5,9    | 7,0   | 13,35                 | 16 | 12. 1,5   | 14,0  | 7,26                  | 23 |
| 13   | 5. 1,8     | 27,8  | 15,61                 | 1  | 14. 12,9   | 6,1   | 13,19                 | 16 | 11. 47,5  | 14,4  | 7,03                  | 24 |
| 14   | 5. 29,6    | 27,3  | 15,62                 | 0  | 14. 19,0   | 5,2   | 13,03                 | 17 | 11. 33,1  | 14,8  | 6,79                  | 24 |
| 15   | 5. 56,9    | 26,8  | 15,62                 | 0  | 14. 24,2   | 4,4   | 12,86                 | 17 | 11. 18,3  | 15,1  | 6,55                  | 23 |
| 16   | 6. 23,7    | 26,3  | 15,62                 | 1  | 14. 28,6   | 3,7   | 12,69                 | 17 | 11. 3,2   | 15,6  | 6,32                  | 23 |
| 17   | 6. 50,0    | 25,9  | 15,61                 | 2  | 14. 32,3   | 2,8   | 12,52                 | 18 | 10. 47,6  | 16,0  | 6,09                  | 24 |
| 18   | 7. 15,9    | 25,3  | 15,59                 | 2  | 14. 35,1   | 2,0   | 12,34                 | 18 | 10. 31,6  | 16,3  | 5,85                  | 24 |
| 19   | 7. 41,2    | 24,6  | 15,57                 | 3  | 14. 37,1   | 1,1   | 12,16                 | 19 | 10. 15,3  | 16,7  | 5,61                  | 24 |
| 20   | 8. 5,8     | 24,1  | 15,54                 | 4  | 14. 38,2   | 0,3   | 11,97                 | 19 | 9. 58,6   | 17,0  | 5,37                  | 24 |
| 21   | 8. 29,9    | 23,4  | 15,50                 | 5  | 14. 38,5   | 0,6   | 11,78                 | 19 | 9. 41,6   | 17,2  | 5,13                  | 23 |
| 22   | 8. 53,3    | 22,8  | 15,45                 | 4  | 14. 37,9   | 1,3   | 11,59                 | 19 | 9. 24,4   | 17,4  | 4,90                  | 24 |
| 23   | 9. 16,1    | 22,1  | 15,41                 | 6  | 14. 36,6   | 2,0   | 11,40                 | 20 | 9. 7,0    | 17,7  | 4,66                  | 24 |
| 24   | 9. 38,2    | 21,5  | 15,35                 | 6  | 14. 34,6   | 2,7   | 11,20                 | 20 | 8. 49,3   | 17,9  | 4,42                  | 24 |
| 25   | 9. 59,7    | 20,9  | 15,29                 | 7  | 14. 31,9   | 3,6   | 11,00                 | 21 | 8. 31,4   | 18,1  | 4,18                  | 24 |
| 26   | 10. 20,6   | 20,2  | 15,22                 | 8  | 14. 28,3   | 4,4   | 10,79                 | 20 | 8. 13,3   | 18,3  | 3,94                  | 24 |
| 27   | 10. 40,8   | 19,3  | 15,14                 | 8  | 14. 23,9   | 5,0   | 10,59                 | 21 | 7. 55,0   | 18,5  | 3,70                  | 25 |
| 28   | 11. 0,1    | 18,5  | 15,06                 | 8  | 14. 18,9   | 5,6   | 10,38                 | 21 | 7. 36,5   | 18,6  | 3,45                  | 24 |
| 29   | 11. 18,6   | 17,7  | 14,98                 | 9  | 14. 13,3   | 6,4   | 10,17                 | 21 | 7. 17,9   | 18,7  | 3,21                  | 24 |
| 30   | + 11. 36,3 |       | 14,89                 |    | + 14. 6,9  |       | 9,96                  |    | + 6. 59,2 |       | 2,97                  |    |



TABLE XXX.

Equation of Time. Perturbations.

C

| B    | 0     | 100   | 200   | 300   | 400   | 500   | 600   | 700   | 800   | 900   | 1000  |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0    | " 1,4 | " 0,8 | " 1,0 | " 1,7 | " 1,7 | " 1,2 | " 0,7 | " 0,4 | " 0,6 | " 1,4 | " 1,4 |
| 100  | 1,2   | 1,4   | 1,1   | 1,0   | 1,6   | 1,8   | 1,1   | 0,7   | 0,6   | 0,7   | 1,2   |
| 200  | 0,9   | 1,0   | 1,2   | 1,2   | 1,2   | 1,5   | 1,7   | 1,1   | 0,5   | 0,7   | 0,9   |
| 300  | 0,7   | 1,1   | 1,1   | 0,9   | 1,2   | 1,4   | 1,5   | 1,6   | 1,2   | 0,5   | 0,7   |
| 400  | 0,5   | 0,6   | 1,2   | 1,2   | 0,8   | 1,0   | 1,6   | 1,7   | 1,5   | 1,2   | 0,5   |
| 500  | 1,0   | 0,5   | 0,6   | 1,2   | 1,4   | 0,8   | 0,8   | 1,5   | 1,9   | 1,5   | 1,0   |
| 600  | 1,7   | 1,0   | 0,4   | 0,5   | 1,2   | 1,4   | 0,9   | 0,6   | 1,3   | 2,0   | 1,7   |
| 700  | 1,9   | 1,8   | 1,1   | 0,4   | 0,4   | 1,1   | 1,6   | 1,1   | 0,7   | 1,2   | 1,9   |
| 800  | 1,2   | 1,8   | 1,8   | 1,2   | 0,4   | 0,3   | 1,0   | 1,6   | 1,2   | 0,7   | 1,2   |
| 900  | 0,7   | 1,1   | 1,7   | 1,8   | 1,2   | 0,6   | 0,2   | 0,8   | 1,6   | 1,3   | 0,7   |
| 1000 | 1,4   | 0,8   | 1,0   | 1,7   | 1,7   | 1,2   | 0,7   | 0,4   | 0,6   | 1,4   | 1,4   |

B

D

|      |       |       |       |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0    | " 0,6 | " 0,7 | " 0,5 | " 0,3 | " 0,2 | " 0,6 | " 0,7 | " 0,5 | " 0,2 | " 0,1 | " 0,6 |
| 100  | 0,2   | 0,7   | 0,6   | 0,5   | 0,2   | 0,3   | 0,6   | 0,9   | 0,5   | 0,2   | 0,2   |
| 200  | 0,2   | 0,4   | 0,6   | 0,5   | 0,4   | 0,3   | 0,4   | 0,6   | 0,5   | 0,5   | 0,2   |
| 300  | 0,4   | 0,2   | 0,5   | 0,5   | 0,5   | 0,4   | 0,4   | 0,4   | 0,5   | 0,5   | 0,4   |
| 400  | 0,5   | 0,4   | 0,4   | 0,4   | 0,4   | 0,4   | 0,5   | 0,5   | 0,4   | 0,4   | 0,5   |
| 500  | 0,4   | 0,5   | 0,5   | 0,5   | 0,4   | 0,4   | 0,3   | 0,4   | 0,5   | 0,3   | 0,4   |
| 600  | 0,3   | 0,3   | 0,5   | 0,6   | 0,4   | 0,4   | 0,3   | 0,5   | 0,7   | 0,4   | 0,3   |
| 700  | 0,4   | 0,2   | 0,3   | 0,6   | 0,6   | 0,4   | 0,2   | 0,2   | 0,7   | 0,7   | 0,4   |
| 800  | 0,6   | 0,3   | 0,2   | 0,3   | 0,7   | 0,6   | 0,3   | 0,2   | 0,3   | 0,8   | 0,6   |
| 900  | 0,8   | 0,5   | 0,3   | 0,1   | 0,4   | 0,7   | 0,5   | 0,3   | 0,1   | 0,5   | 0,8   |
| 1000 | 0,6   | 0,7   | 0,5   | 0,3   | 0,2   | 0,6   | 0,7   | 0,5   | 0,2   | 0,1   | 0,6   |

B

E

|      |       |       |       |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0    | " 1,0 | " 1,0 | " 1,1 | " 1,2 | " 1,1 | " 1,0 | " 0,7 | " 0,4 | " 0,6 | " 0,9 | " 1,0 |
| 100  | 0,9   | 0,9   | 0,8   | 1,0   | 1,3   | 1,3   | 1,0   | 0,7   | 0,4   | 0,5   | 0,9   |
| 200  | 0,5   | 0,7   | 0,7   | 0,8   | 1,0   | 1,0   | 1,1   | 1,2   | 0,9   | 0,3   | 0,5   |
| 300  | 0,2   | 0,5   | 0,7   | 0,7   | 0,8   | 1,2   | 1,5   | 1,5   | 1,1   | 0,5   | 0,2   |
| 400  | 0,3   | 0,2   | 0,5   | 0,7   | 0,7   | 0,9   | 1,3   | 1,4   | 1,4   | 1,0   | 0,3   |
| 500  | 0,8   | 0,3   | 0,2   | 0,5   | 0,7   | 0,7   | 1,0   | 1,4   | 1,4   | 1,4   | 0,8   |
| 600  | 1,3   | 0,7   | 0,3   | 0,3   | 0,5   | 0,7   | 0,9   | 1,1   | 1,4   | 1,6   | 1,3   |
| 700  | 1,5   | 1,1   | 0,7   | 0,3   | 0,4   | 0,5   | 0,8   | 1,0   | 1,2   | 1,4   | 1,5   |
| 800  | 1,3   | 1,3   | 1,0   | 0,7   | 0,4   | 0,4   | 0,6   | 0,8   | 1,0   | 1,2   | 1,3   |
| 900  | 1,1   | 1,2   | 1,2   | 1,0   | 0,8   | 0,6   | 0,5   | 0,6   | 0,9   | 1,1   | 1,1   |
| 1000 | 1,0   | 1,0   | 1,1   | 1,2   | 1,1   | 1,0   | 0,7   | 0,4   | 0,6   | 0,9   | 1,0   |

B

F

|      |       |       |       |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0    | " 0,1 | " 0,1 | " 0,1 | " 0,1 | " 0,0 | " 0,0 | " 0,0 | " 0,0 | " 0,0 | " 0,1 | " 0,1 |
| 200  | 0,0   | 0,1   | 0,1   | 0,1   | 0,1   | 0,1   | 0,1   | 0,1   | 0,0   | 0,0   | 0,1   |
| 400  | 0,1   | 0,1   | 0,0   | 0,0   | 0,0   | 0,1   | 0,1   | 0,1   | 0,1   | 0,1   | 0,1   |
| 600  | 0,1   | 0,1   | 0,1   | 0,0   | 0,0   | 0,0   | 0,0   | 0,1   | 0,1   | 0,1   | 0,1   |
| 800  | 0,1   | 0,1   | 0,1   | 0,1   | 0,0   | 2,1   | 0,0   | 0,0   | 0,1   | 0,1   | 0,1   |
| 1000 | 0,1   | 0,1   | 0,1   | 0,1   | 0,0   | 0,0   | 0,0   | 0,0   | 0,0   | 0,1   | 0,1   |

Moon and Nutation.

|   |       |       |       |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A | " 0,5 | " 0,8 | " 1,0 | " 1,0 | " 0,8 | " 0,5 | " 0,2 | " 0,0 | " 0,0 | " 0,2 | " 0,5 |
| N | 0,1   | 0,1   | 0,2   | 0,2   | 0,2   | 0,2   | 0,2   | 0,2   | 0,2   | 0,1   | 0,1   |

Constant Quantity — 3", 1.



TABLE XXXI.

Mean Motion of the Sun, in the Interval between 12 o'Clock at Night, Mean Time,  
and Apparent Noon.

ARGUMENT. Sun's Mean Longitude.

| Deg. | O +      | Diff. | I +      | Diff. | II +     | Diff. | III +    | Diff. | IV +     | Diff. | V +      | Diff. |
|------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|
| 0    | 29. 50,9 | 8     | 29. 30,3 | 4     | 29. 25,3 | 2     | 29. 38,0 | 6     | 29. 49,2 | I     | 29. 40,8 | 6     |
| 1    | 29. 50,1 | 7     | 29. 29,9 | 6     | 29. 25,5 | 2     | 29. 38,6 | 5     | 29. 49,3 | I     | 29. 40,2 | 6     |
| 2    | 29. 49,4 | 8     | 29. 29,3 | 5     | 29. 25,7 | 3     | 29. 39,1 | 5     | 29. 49,4 | 0     | 29. 39,6 | 7     |
| 3    | 29. 48,6 | 7     | 29. 28,8 | 4     | 29. 26,0 | 3     | 29. 39,6 | 6     | 29. 49,4 | 0     | 29. 38,9 | 7     |
| 4    | 29. 47,9 | 8     | 29. 28,4 | 4     | 29. 26,3 | 2     | 29. 40,2 | 5     | 29. 49,4 | 0     | 29. 38,2 | 7     |
| 5    | 29. 47,1 | 8     | 29. 28,0 | 4     | 29. 26,5 | 3     | 29. 40,7 | 5     | 29. 49,4 | 0     | 29. 37,5 | 7     |
| 6    | 29. 46,3 | 8     | 29. 27,6 | 3     | 29. 26,8 | 3     | 29. 41,2 | 5     | 29. 49,4 | I     | 29. 36,8 | 7     |
| 7    | 29. 45,5 | 7     | 29. 27,3 | 4     | 29. 27,1 | 4     | 29. 41,7 | 5     | 29. 49,3 | 0     | 29. 36,1 | 8     |
| 8    | 29. 44,8 | 8     | 29. 26,9 | 3     | 29. 27,5 | 3     | 29. 42,2 | 5     | 29. 49,3 | 2     | 29. 35,3 | 8     |
| 9    | 29. 44,0 | 8     | 29. 26,6 | 3     | 29. 27,8 | 4     | 29. 42,7 | 5     | 29. 49,1 | 2     | 29. 34,5 | 7     |
| 10   | 29. 43,2 | 7     | 29. 26,3 | 3     | 29. 28,2 | 4     | 29. 43,2 | 5     | 29. 48,9 | 2     | 29. 33,8 | 8     |
| 11   | 29. 42,5 | 8     | 29. 26,0 | 2     | 29. 28,6 | 4     | 29. 43,6 | 4     | 29. 48,7 | 2     | 29. 33,0 | 8     |
| 12   | 29. 41,7 | 7     | 29. 25,8 | 3     | 29. 29,0 | 4     | 29. 44,1 | 5     | 29. 48,5 | 2     | 29. 32,2 | 8     |
| 13   | 29. 41,0 | 7     | 29. 25,5 | 2     | 29. 29,4 | 5     | 29. 44,5 | 4     | 29. 48,3 | 2     | 29. 31,4 | 8     |
| 14   | 29. 40,3 | 7     | 29. 25,3 | 1     | 29. 29,9 | 4     | 29. 45,0 | 5     | 29. 48,1 | 3     | 29. 30,6 | 9     |
| 15   | 29. 39,6 | 8     | 29. 25,2 | 2     | 29. 30,3 | 5     | 29. 45,4 | 4     | 29. 47,8 | 3     | 29. 29,7 | 8     |
| 16   | 29. 38,8 | 6     | 29. 25,0 | I     | 29. 30,8 | 4     | 29. 45,8 | 3     | 29. 47,5 | 3     | 29. 28,9 | 9     |
| 17   | 29. 38,2 | 7     | 29. 24,9 | I     | 29. 31,2 | 5     | 29. 46,1 | 4     | 29. 47,2 | 4     | 29. 28,0 | 8     |
| 18   | 29. 37,5 | 7     | 29. 24,8 | I     | 29. 31,7 | 5     | 29. 46,5 | 4     | 29. 46,8 | 4     | 29. 27,2 | 9     |
| 19   | 29. 36,8 | 7     | 29. 24,7 | I     | 29. 32,2 | 5     | 29. 46,9 | 3     | 29. 46,4 | 4     | 29. 26,3 | 8     |
| 20   | 29. 36,1 | 6     | 29. 24,6 | 0     | 29. 32,7 | 5     | 29. 47,2 | 3     | 29. 46,0 | 4     | 29. 25,5 | 9     |
| 21   | 29. 35,5 | 7     | 29. 24,6 | I     | 29. 33,2 | 6     | 29. 47,5 | 3     | 29. 45,6 | 4     | 29. 24,6 | 9     |
| 22   | 29. 34,8 | 6     | 29. 24,5 | 0     | 29. 33,8 | 5     | 29. 47,8 | 2     | 29. 45,2 | 5     | 29. 23,7 | 8     |
| 23   | 29. 34,2 | 6     | 29. 24,5 | I     | 29. 34,3 | 5     | 29. 48,0 | 3     | 29. 44,7 | 5     | 29. 22,9 | 9     |
| 24   | 29. 33,6 | 6     | 29. 24,6 | I     | 29. 34,8 | 5     | 29. 48,3 | 2     | 29. 44,2 | 5     | 29. 22,0 | 9     |
| 25   | 29. 33,0 | 5     | 29. 24,7 | I     | 29. 35,3 | 6     | 29. 48,5 | 2     | 29. 43,7 | 5     | 29. 21,1 | 9     |
| 26   | 29. 32,5 | 6     | 29. 24,8 | I     | 29. 35,9 | 5     | 29. 48,7 | 2     | 29. 43,2 | 6     | 29. 20,2 | 8     |
| 27   | 29. 31,9 | 6     | 29. 24,9 | I     | 29. 36,4 | 6     | 29. 48,9 | I     | 29. 42,6 | 5     | 29. 19,4 | 9     |
| 28   | 29. 31,3 | 5     | 29. 25,0 | I     | 29. 37,0 | 5     | 29. 49,0 | I     | 29. 42,1 | 5     | 29. 18,5 | 9     |
| 29   | 29. 30,8 | 5     | 29. 25,1 | 2     | 29. 37,5 | 5     | 29. 49,1 | I     | 29. 41,6 | 8     | 29. 17,5 | 8     |
| 30   | 29. 30,3 |       | 29. 25,3 |       | 29. 38,0 |       | 29. 49,2 |       | 29. 40,8 |       | 29. 16,7 |       |

Motions of the principal Arguments 

|    |    |   |   |   |
|----|----|---|---|---|
| M  | A  | B | C | D |
| 18 | 17 | 1 | 1 | 1 |

 for 12 hours.



## Continuation of TABLE XXXI.

Mean Motion of the Sun, in the Interval between 12 o'Clock at Night, Mean Time, and Apparent Noon.

ARGUMENT. Mean Longitude of the Sun.

| Deg. | VI +     | Diff. | VII +    | Diff. | VIII +   | Diff. | IX +     | Diff. | X +      | Diff. | XI +     | Diff. |
|------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|
| 0    | 29. 16,7 | 8     | 28. 56,2 | 3     | 29. 0,0  | 7     | 29. 31,0 | 1,2   | 30. 2,8  | 7     | 30. 8,6  | 3     |
| 1    | 29. 15,9 | 9     | 28. 55,9 | 4     | 29. 0,7  | 7     | 29. 32,2 | 1,3   | 30. 3,5  | 6     | 30. 8,3  | 3     |
| 2    | 29. 15,0 | 9     | 28. 55,5 | 3     | 29. 1,4  | 7     | 29. 33,5 | 1,2   | 30. 4,1  | 6     | 30. 8,0  | 3     |
| 3    | 29. 14,1 | 8     | 28. 55,2 | 2     | 29. 2,1  | 8     | 29. 34,7 | 1,2   | 30. 4,7  | 6     | 30. 7,7  | 4     |
| 4    | 29. 13,3 | 9     | 28. 55,0 | 3     | 29. 2,9  | 8     | 29. 35,9 | 1,3   | 30. 5,3  | 6     | 30. 7,3  | 4     |
| 5    | 29. 12,4 | 8     | 28. 54,7 | 2     | 29. 3,7  | 8     | 29. 37,2 | 1,2   | 30. 5,9  | 5     | 30. 6,9  | 5     |
| 6    | 29. 11,6 | 8     | 28. 54,5 | 2     | 29. 4,5  | 9     | 29. 38,4 | 1,2   | 30. 6,4  | 5     | 30. 6,4  | 4     |
| 7    | 29. 10,8 | 8     | 28. 54,3 | 1     | 29. 5,4  | 9     | 29. 39,6 | 1,2   | 30. 6,9  | 4     | 30. 6,0  | 5     |
| 8    | 29. 10,0 | 8     | 28. 54,2 | 1     | 29. 6,3  | 9     | 29. 40,8 | 1,2   | 30. 7,3  | 5     | 30. 5,5  | 5     |
| 9    | 29. 9,2  | 8     | 28. 54,1 | 1     | 29. 7,2  | 9     | 29. 42,0 | 1,1   | 30. 7,8  | 3     | 30. 5,0  | 5     |
| 10   | 29. 8,4  | 8     | 28. 54,0 | 0     | 29. 8,1  | 9     | 29. 43,1 | 1,1   | 30. 8,1  | 4     | 30. 4,5  | 5     |
| 11   | 29. 7,6  | 8     | 28. 54,0 | 0     | 29. 9,1  | 1,0   | 29. 44,4 | 1,3   | 30. 8,5  | 3     | 30. 4,0  | 6     |
| 12   | 29. 6,8  | 7     | 28. 54,0 | 0     | 29. 10,1 | 1,0   | 29. 45,6 | 1,2   | 30. 8,8  | 3     | 30. 3,4  | 6     |
| 13   | 29. 6,1  | 8     | 28. 54,0 | 1     | 29. 11,1 | 1,1   | 29. 46,7 | 1,1   | 30. 9,1  | 2     | 30. 2,8  | 6     |
| 14   | 29. 5,3  | 7     | 28. 54,1 | 1     | 29. 12,2 | 1,0   | 29. 47,8 | 1,1   | 30. 9,3  | 2     | 30. 2,2  | 6     |
| 15   | 29. 4,6  | 7     | 28. 54,2 | 1     | 29. 13,2 | 1,1   | 29. 48,9 | 1,1   | 30. 9,5  | 2     | 30. 1,6  | 6     |
| 16   | 29. 3,9  | 7     | 28. 54,3 | 2     | 29. 14,3 | 1,1   | 29. 50,0 | 1,1   | 30. 9,7  | 1     | 30. 1,0  | 7     |
| 17   | 29. 3,2  | 7     | 28. 54,5 | 2     | 29. 15,4 | 1,1   | 29. 51,1 | 1,1   | 30. 9,8  | 1     | 30. 0,3  | 7     |
| 18   | 29. 2,5  | 6     | 28. 54,7 | 3     | 29. 16,5 | 1,2   | 29. 52,2 | 1,0   | 30. 9,9  | 1     | 29. 59,6 | 6     |
| 19   | 29. 1,9  | 7     | 28. 55,0 | 2     | 29. 17,7 | 1,1   | 29. 53,2 | 1,0   | 30. 10,0 | 0     | 29. 59,0 | 7     |
| 20   | 29. 1,2  | 6     | 28. 55,2 | 3     | 29. 18,8 | 1,2   | 29. 54,2 | 1,0   | 30. 10,0 | 0     | 29. 58,3 | 7     |
| 21   | 29. 0,6  | 6     | 28. 55,5 | 3     | 29. 20,0 | 1,2   | 29. 55,2 | 1,0   | 30. 10,0 | 0     | 29. 57,6 | 7     |
| 22   | 29. 0,0  | 5     | 28. 55,8 | 4     | 29. 21,2 | 1,2   | 29. 56,2 | 0,9   | 30. 10,0 | 0     | 29. 56,9 | 8     |
| 23   | 28. 59,5 | 6     | 28. 56,2 | 5     | 29. 22,4 | 1,2   | 29. 57,1 | 0,9   | 30. 10,0 | 1     | 29. 56,1 | 7     |
| 24   | 28. 58,9 | 5     | 28. 56,7 | 5     | 29. 23,6 | 1,2   | 29. 58,0 | 0,9   | 30. 9,9  | 2     | 29. 55,4 | 7     |
| 25   | 28. 58,4 | 5     | 28. 57,2 | 5     | 29. 24,8 | 1,3   | 29. 58,9 | 0,8   | 30. 9,7  | 1     | 29. 54,7 | 8     |
| 26   | 28. 57,9 | 5     | 28. 57,7 | 5     | 29. 26,1 | 1,2   | 29. 59,7 | 0,8   | 30. 9,6  | 2     | 29. 53,9 | 7     |
| 27   | 28. 57,4 | 4     | 28. 58,2 | 6     | 29. 27,3 | 1,2   | 30. 0,5  | 0,8   | 30. 9,4  | 2     | 29. 53,2 | 8     |
| 28   | 28. 57,0 | 4     | 28. 58,8 | 6     | 29. 28,5 | 1,2   | 30. 1,3  | 0,8   | 30. 9,2  | 3     | 29. 52,4 | 7     |
| 29   | 28. 56,6 | 4     | 28. 59,4 | 6     | 29. 29,7 | 1,3   | 30. 2,1  | 0,7   | 30. 8,9  | 3     | 29. 51,7 | 8     |
| 30   | 28. 56,2 | 4     | 29. 0,0  | 6     | 29. 31,0 | 1,3   | 30. 2,8  | 0,7   | 30. 8,6  | 3     | 29. 50,9 |       |

Motions of the principal Arguments

| M  | A  | B | C | D |
|----|----|---|---|---|
| 18 | 17 | 1 | 1 | 1 |

for 12 hours.



# TABLES OF THE MOON.

## TABLES OF THE MOON.







# TABLES OF THE MOON.

TABLE I.

EPOCHS for *January 1*, at Noon, Mean Time.

| YEARS.  | Mean Longitude<br>of the Moon. | Secular<br>Equation. | Mean Anomaly.     | Secular<br>Equation. | Supplement of<br>the Node. | Secular<br>Equation. |
|---------|--------------------------------|----------------------|-------------------|----------------------|----------------------------|----------------------|
| 1790    | 3°. 18°. 41'. 52",3            | 14",4                | 9°. 20°. 2' 38",7 | 39",2                | 4°. 13°. 23'. 54",8        | -6",1                |
| 1791    | 7. 28. 4. 57,2                 | 14,2                 | 0. 18. 45. 57,8   | 39,6                 | 5. 2. 43. 38,2             | 6,3                  |
| 1792 B. | 0. 7. 28. 2,1                  | 13,9                 | 3. 17. 29. 16,9   | 39,9                 | 5. 22. 3. 21,5             | 6,4                  |
| 1793    | 5. 0. 1. 42,0                  | 13,7                 | 6. 29. 16. 30,0   | 40,2                 | 6. 11. 26. 15,5            | 6,5                  |
| 1794    | 9. 9. 24. 46,9                 | 13,5                 | 9. 27. 59. 49,1   | 40,5                 | 7. 0. 45. 58,9             | 6,7                  |
| 1795    | 1. 18. 47. 51,8                | 13,3                 | 0. 26. 43. 8,1    | 40,9                 | 7. 20. 5. 42,2             | 6,8                  |
| 1796 B. | 5. 28. 10. 56,6                | 13,1                 | 3. 25. 26. 27,2   | 41,3                 | 8. 9. 25. 25,6             | 7,0                  |
| 1797    | 10. 20. 44. 36,6               | 12,8                 | 7. 7. 13. 40,3    | 41,6                 | 8. 28. 48. 19,6            | 7,1                  |
| 1798    | 3. 0. 7. 41,4                  | 12,4                 | 10. 5. 56. 59,4   | 42,0                 | 9. 18. 8. 3,0              | 7,3                  |
| 1799    | 7. 9. 30. 46,3                 | 12,0                 | 1. 4. 40. 18,5    | 42,2                 | 10. 7. 27. 46,3            | 7,4                  |
| 1800 C. | 11. 18. 53. 51,2               | 11,7                 | 4. 3. 23. 37,6    | 42,5                 | 10. 26. 47. 29,7           | 7,6                  |
| 1801    | 3. 28. 16. 56,1                | 11,5                 | 7. 2. 6. 56,6     | 42,8                 | 11. 16. 7. 13,0            | 7,7                  |
| 1802    | 8. 7. 40. 1,0                  | 11,3                 | 10. 0. 50. 15,7   | 43,2                 | 0. 5. 26. 56,4             | 7,9                  |
| 1803    | 0. 17. 3. 5,9                  | 11,0                 | 0. 29. 33. 34,8   | 43,5                 | 0. 24. 46. 39,8            | 8,1                  |
| 1804 B. | 4. 26. 26. 10,7                | 10,8                 | 3. 28. 16. 53,9   | 43,9                 | 1. 14. 6. 23,1             | 8,2                  |
| 1805    | 9. 18. 59. 50,6                | 10,5                 | 7. 10. 4. 6,9     | 44,3                 | 2. 3. 29. 17,1             | 8,3                  |
| 1806    | 1. 28. 22. 55,5                | 10,3                 | 10. 8. 47. 26,0   | 44,8                 | 2. 22. 49. 0,5             | 8,5                  |
| 1807    | 6. 7. 46. 0,4                  | 10,0                 | 1. 7. 30. 45,1    | 45,1                 | 3. 12. 8. 43,8             | 8,7                  |
| 1808 B. | 10. 17. 9. 5,3                 | 9,7                  | 4. 6. 14. 4,2     | 45,5                 | 4. 1. 28. 27,2             | 8,8                  |
| 1809    | 3. 9. 42. 45,2                 | 9,4                  | 7. 18. 1. 17,2    | 45,9                 | 4. 20. 51. 21,2            | 9,0                  |
| 1810    | 7. 19. 5. 50,1                 | 9,1                  | 10. 16. 44. 36,3  | 46,3                 | 5. 10. 11. 4,6             | 9,1                  |
| 1811    | 11. 28. 28. 54,9               | 8,9                  | 1. 15. 27. 55,4   | 46,8                 | 5. 29. 30. 47,9            | 9,3                  |
| 1812 B. | 4. 7. 51. 59,8                 | 8,7                  | 4. 14. 11. 14,5   | 47,2                 | 6. 18. 50. 31,3            | 9,5                  |
| 1813    | 9. 0. 25. 39,7                 | 8,6                  | 7. 25. 58. 27,6   | 47,7                 | 7. 8. 13. 25,3             | 9,7                  |
| 1814    | 1. 9. 48. 44,6                 | 8,4                  | 10. 24. 41. 46,6  | 48,2                 | 7. 27. 33. 8,6             | 9,8                  |
| 1815    | 5. 19. 11. 49,5                | 8,1                  | 1. 23. 25. 5,7    | 48,6                 | 8. 16. 52. 52,0            | 10,0                 |
| 1816 B. | 9. 28. 34. 54,4                | 7,9                  | 4. 22. 8. 24,8    | 49,2                 | 9. 6. 12. 35,4             | 10,2                 |
| 1817    | 2. 21. 8. 34,3                 | 7,7                  | 8. 3. 55. 37,9    | 49,7                 | 9. 25. 35. 29,4            | 10,4                 |
| 1818    | 7. 0. 31. 39,1                 | 7,6                  | 11. 2. 38. 57,0   | 50,3                 | 10. 14. 55. 12,7           | 10,5                 |
| 1819    | 11. 9. 54. 44,0                | 7,4                  | 2. 1. 22. 16,1    | 50,8                 | 11. 4. 14. 56,1            | 10,7                 |
| 1820 B. | 3. 19. 17. 48,9                | 7,3                  | 5. 0. 5. 35,1     | 51,5                 | 11. 23. 34. 39,4           | 10,9                 |



## Continuation of TABLE I.

EPOCHS for *January 1*, at Noon, Mean Time.

| YEARS.  | Mean Longitude<br>of the Moon. | Secular<br>Equation. | Mean Anomaly.        | Secular<br>Equation. | Supplement of<br>the Node. | Secular<br>Equation. |
|---------|--------------------------------|----------------------|----------------------|----------------------|----------------------------|----------------------|
| 1821    | 8°. 11'. 51". 28', 8           | 7'', 1               | 8°. 11'. 52". 48', 2 | 0'. 52'', 0          | 0°. 12'. 57". 33', 4       | - 11'', 1            |
| 1822    | 0. 21. 14. 33, 7               | 7, 0                 | 11. 10. 36. 7, 3     | 0. 52, 6             | 1. 2. 17. 16, 8            | 11, 3                |
| 1823    | 5. 0. 37. 38, 6                | 7, 0                 | 2. 9. 19. 26, 4      | 0. 53, 3             | 1. 21. 37. 0, 2            | 11, 5                |
| 1824 B. | 9. 10. 0. 43, 4                | 6, 9                 | 5. 8. 2. 45, 5       | 0. 54, 0             | 2. 10. 56. 43, 5           | 11, 6                |
| 1825    | 2. 2. 34. 23, 4                | 6, 7                 | 8. 19. 49. 58, 5     | 0. 54, 6             | 3. 0. 19. 37, 5            | 11, 8                |
| 1826    | 6. 11. 57. 28, 2               | 6, 6                 | 11. 18. 33. 17, 6    | 0. 55, 3             | 3. 19. 39. 20, 9           | 12, 0                |
| 1827    | 10. 21. 20. 33, 1              | 6, 5                 | 2. 17. 16. 36, 7     | 0. 56, 0             | 4. 8. 59. 4, 2             | 12, 2                |
| 1828 B. | 3. 0. 43. 38, 0                | 6, 3                 | 5. 15. 59. 55, 8     | 0. 56, 6             | 4. 28. 18. 47, 6           | 12, 4                |
| 1829    | 7. 23. 17. 17, 9               | 6, 3                 | 8. 27. 47. 8, 8      | 0. 57, 4             | 5. 17. 41. 41, 6           | 12, 6                |
| 1830    | 0. 2. 40. 22, 8                | 6, 3                 | 11. 26. 30. 27, 9    | 0. 58, 3             | 6. 7. 1. 25, 0             | 12, 8                |
| 1831    | 4. 12. 3. 27, 7                | 6, 2                 | 2. 25. 13. 47, 0     | 0. 59, 1             | 6. 26. 21. 8, 3            | 13, 0                |
| 1832 B. | 8. 21. 26. 32, 5               | 6, 2                 | 5. 23. 57. 6, 1      | 0. 59, 7             | 7. 15. 40. 51, 7           | 13, 2                |
| 1833    | 1. 14. 0. 12, 4                | 6, 2                 | 9. 5. 44. 19, 2      | 1. 0, 5              | 8. 5. 3. 45, 7             | 13, 4                |
| 1834    | 5. 23. 23. 17, 3               | 6, 2                 | 0. 4. 27. 38, 2      | 1. 1, 4              | 8. 24. 23. 29, 0           | 13, 6                |
| 1835    | 10. 2. 46. 22, 2               | 6, 2                 | 3. 3. 10. 57, 3      | 1. 2, 3              | 9. 13. 43. 12, 4           | 13, 8                |
| 1836 B. | 2. 12. 9. 27, 1                | 6, 3                 | 6. 1. 54. 16, 4      | 1. 3, 2              | 10. 3. 2. 55, 8            | 14, 0                |
| 1837    | 7. 4. 43. 7, 0                 | 6, 4                 | 9. 13. 41. 29, 5     | 1. 4, 1              | 10. 22. 25. 49, 8          | 14, 2                |
| 1838    | 11. 14. 6. 11, 9               | 6, 6                 | 0. 12. 24. 48, 6     | 1. 5, 1              | 11. 11. 45. 33, 1          | 14, 4                |
| 1839    | 3. 23. 29. 16, 8               | 6, 7                 | 3. 11. 8. 7, 7       | 1. 6, 0              | 0. 1. 5. 16, 5             | 14, 6                |
| 1840 B. | 8. 2. 52. 21, 6                | 6, 8                 | 6. 9. 51. 26, 8      | 1. 6, 9              | 0. 20. 24. 59, 8           | 14, 8                |
| 1841    | 0. 25. 26. 1, 5                | 7, 0                 | 9. 21. 38. 39, 8     | 1. 7, 9              | 1. 9. 47. 53, 8            | 15, 1                |
| 1842    | 5. 4. 49. 6, 4                 | 7, 1                 | 0. 20. 21. 58, 9     | 1. 9, 0              | 1. 29. 7. 37, 2            | 15, 3                |
| 1843    | 9. 14. 12. 11, 3               | 7, 3                 | 3. 19. 5. 18, 0      | 1. 10, 1             | 2. 18. 27. 20, 6           | 15, 5                |
| 1844 B. | 1. 23. 35. 16, 2               | 7, 4                 | 6. 17. 48. 37, 1     | 1. 11, 2             | 3. 7. 47. 3, 9             | 15, 7                |
| 1845    | 6. 16. 8. 56, 1                | 7, 6                 | 9. 29. 35. 50, 1     | 1. 12, 4             | 3. 27. 9. 57, 9            | 15, 9                |
| 1846    | 10. 25. 32. 1, 0               | 7, 8                 | 0. 28. 19. 9, 2      | 1. 13, 6             | 4. 16. 29. 41, 3           | 16, 1                |
| 1847    | 3. 4. 55. 5, 9                 | 8, 1                 | 3. 27. 2. 28, 3      | 1. 14, 7             | 5. 5. 49. 24, 6            | 16, 4                |
| 1848 B. | 7. 14. 18. 10, 7               | 8, 4                 | 6. 25. 45. 47, 4     | 1. 15, 9             | 5. 25. 9. 8, 0             | 16, 6                |
| 1849    | 0. 6. 51. 50, 6                | 8, 7                 | 10. 7. 33. 0, 4      | 1. 17, 1             | 6. 14. 32. 2, 0            | 16, 8                |
| 1850    | 4. 16. 14. 55, 5               | 9, 0                 | 1. 6. 16. 19, 5      | 1. 18, 3             | 7. 3. 51. 45, 4            | 17, 0                |
| 1851    | 8. 25. 38. 0, 4                | 9, 3                 | 4. 4. 59. 38, 6      | 1. 19, 6             | 7. 23. 11. 28, 7           | 17, 2                |
| 1852 B. | 1. 5. 1. 5, 3                  | 9, 7                 | 7. 3. 42. 57, 7      | 1. 20, 9             | 8. 12. 31. 12, 2           | 17, 5                |
| 1853    | 5. 27. 34. 45, 2               | 10, 1                | 10. 15. 30. 10, 8    | 1. 22, 2             | 9. 1. 54. 6, 1             | 17, 7                |
| 1854    | 10. 6. 57. 50, 1               | 10, 5                | 1. 14. 13. 29, 8     | 1. 23, 5             | 9. 21. 13. 49, 4           | 17, 9                |
| 1855    | 2. 16. 20. 55, 0               | 10, 9                | 4. 12. 56. 48, 9     | 1. 24, 8             | 10. 10. 33. 32, 8          | 18, 1                |
| 1856 B. | 6. 25. 43. 59, 8               | 11, 3                | 7. 11. 40. 8, 0      | 1. 26, 1             | 10. 29. 53. 16, 2          | 18, 3                |
| 1857    | 11. 18. 17. 39, 7              | 11, 7                | 10. 23. 27. 21, 1    | 1. 27, 5             | 11. 19. 16. 10, 2          | 18, 5                |
| 1858    | 3. 27. 40. 44, 6               | 12, 1                | 1. 22. 10. 40, 2     | 1. 28, 9             | 0. 8. 35. 53, 5            | 18, 7                |
| 1859    | 8. 7. 3. 49, 5                 | 12, 5                | 4. 20. 53. 59, 3     | 1. 30, 3             | 0. 27. 55. 36, 9           | 18, 9                |
| 1860 B. | 0. 16. 26. 54, 4               | 13, 1                | 7. 19. 37. 18, 4     | 1. 31, 7             | 1. 17. 15. 20, 2           | 19, 2                |



## Continuation of TABLE I.

EPOCHS for *January 1*, at Noon, Mean Time.

| YEARS.  | Mean Longitude<br>of the Moon. | Secular<br>Equation. | Mean Anomaly.                    | Secular<br>Equation. | Supplement of<br>the Node.      | Secular<br>Equation. |
|---------|--------------------------------|----------------------|----------------------------------|----------------------|---------------------------------|----------------------|
| 1861    | 5 <sup>s</sup> . 9°. 0'. 34",3 | 13",5                | 11 <sup>s</sup> . 1°. 24'. 31",4 | 1'. 33",0            | 2 <sup>s</sup> . 6°. 38'. 14",2 | -19",4               |
| 1862    | 9. 18. 23. 39,2                | 14,0                 | 2. 0. 7. 50,5                    | 1. 34,3              | 2. 25. 57. 57,6                 | 19,7                 |
| 1863    | 1. 27. 46. 44,1                | 14,5                 | 4. 28. 51. 9,6                   | 1. 35,7              | 3. 15. 17. 41,0                 | 20,0                 |
| 1864 B. | 6. 7. 9. 48,9                  | 15,2                 | 7. 27. 34. 28,7                  | 1. 37,1              | 4. 4. 37. 24,3                  | 20,3                 |
| 1865    | 10. 29. 43. 28,8               | 15,7                 | 11. 9. 21. 41,7                  | 1. 38,5              | 4. 24. 0. 18,3                  | 20,5                 |
| 1866    | 3. 9. 6. 33,7                  | 16,3                 | 2. 8. 5. 0,8                     | 1. 39,9              | 5. 13. 20. 1,7                  | 20,8                 |
| 1867    | 7. 18. 29. 38,6                | 16,9                 | 5. 6. 48. 19,9                   | 1. 41,4              | 6. 2. 39. 45,0                  | 21,1                 |
| 1868 B. | 11. 27. 52. 43,5               | 17,5                 | 8. 5. 31. 39,0                   | 1. 43,0              | 6. 21. 59. 28,4                 | 21,4                 |
| 1869    | 4. 20. 26. 23,4                | 18,2                 | 11. 17. 18. 52,0                 | 1. 44,8              | 7. 11. 22. 22,4                 | 21,6                 |
| 1870    | 8. 29. 49. 28,3                | 19,0                 | 2. 16. 2. 11,1                   | 1. 46,7              | 8. 0. 42. 5,8                   | 21,9                 |
| 1871    | 1. 9. 12. 33,2                 | 19,6                 | 5. 14. 45. 30,2                  | 1. 48,7              | 8. 20. 1. 49,1                  | 22,1                 |
| 1872 B. | 5. 18. 35. 38,0                | 20,3                 | 8. 13. 28. 49,3                  | 1. 50,9              | 9. 9. 21. 32,5                  | 22,4                 |
| 1873    | 10. 11. 9. 17,9                | 21,0                 | 11. 25. 16. 2,4                  | 1. 53,0              | 9. 28. 44. 26,5                 | 22,6                 |
| 1874    | 2. 20. 32. 22,8                | 21,7                 | 2. 23. 59. 21,4                  | 1. 55,1              | 10. 18. 4. 9,8                  | 22,9                 |
| 1875    | 6. 29. 55. 27,7                | 22,4                 | 5. 22. 42. 40,5                  | 1. 57,0              | 11. 7. 23. 53,2                 | 23,1                 |
| 1876 B. | 11. 9. 18. 32,6                | 23,1                 | 8. 21. 25. 59,6                  | 1. 58,9              | 11. 26. 43. 36,6                | 23,4                 |
| 1877    | 4. 1. 52. 12,5                 | 23,8                 | 0. 3. 13. 12,7                   | 2. 0,7               | 0. 16. 6. 30,6                  | 23,7                 |
| 1878    | 8. 11. 15. 17,4                | 24,5                 | 3. 1. 56. 31,8                   | 2. 2,4               | 1. 5. 26. 13,9                  | 23,9                 |
| 1879    | 0. 20. 38. 22,3                | 25,2                 | 6. 0. 39. 50,9                   | 2. 4,1               | 1. 24. 45. 57,3                 | 24,3                 |
| 1880 B. | 5. 0. 1. 27,1                  | 26,1                 | 8. 29. 23. 9,9                   | 2. 5,7               | 2. 14. 5. 40,6                  | 24,6                 |
| 1881    | 9. 22. 35. 7,0                 | 26,9                 | 0. 11. 10. 23,0                  | 2. 7,7               | 3. 3. 28. 34,6                  | 24,8                 |
| 1882    | 2. 1. 58. 11,9                 | 27,7                 | 3. 9. 53. 42,1                   | 2. 9,7               | 3. 22. 48. 18,0                 | 25,1                 |
| 1883    | 6. 11. 21. 16,8                | 28,5                 | 6. 8. 37. 1,2                    | 2. 11,7              | 4. 12. 8. 1,4                   | 25,3                 |
| 1884 B. | 10. 20. 44. 21,7               | 29,3                 | 9. 7. 20. 20,3                   | 2. 13,7              | 5. 1. 27. 44,7                  | 25,6                 |
| 1885    | 3. 13. 18. 1,6                 | 30,1                 | 0. 19. 7. 33,3                   | 2. 15,7              | 5. 20. 50. 38,7                 | 25,9                 |
| 1886    | 7. 22. 41. 6,5                 | 30,9                 | 3. 17. 50. 52,4                  | 2. 17,7              | 6. 10. 10. 22,1                 | 26,1                 |
| 1887    | 0. 2. 4. 11,4                  | 31,7                 | 6. 16. 34. 11,5                  | 2. 19,7              | 6. 29. 30. 5,4                  | 26,4                 |
| 1888 B. | 4. 11. 27. 16,2                | 32,5                 | 9. 15. 17. 30,6                  | 2. 21,7              | 7. 18. 49. 48,8                 | 26,6                 |
| 1889    | 9. 4. 0. 56,1                  | 33,3                 | 0. 27. 4. 43,6                   | 2. 23,8              | 8. 8. 12. 42,8                  | 26,9                 |
| 1890    | 1. 13. 24. 1,0                 | 34,1                 | 3. 25. 48. 2,7                   | 2. 25,9              | 8. 27. 32. 26,2                 | 27,1                 |
| 1891    | 5. 22. 47. 5,9                 | 35,0                 | 6. 24. 31. 21,8                  | 2. 28,0              | 9. 16. 52. 9,6                  | 27,4                 |
| 1892 B. | 10. 2. 10. 10,8                | 35,8                 | 9. 23. 14. 40,9                  | 2. 30,1              | 10. 6. 11. 52,9                 | 27,7                 |
| 1893    | 2. 24. 43. 50,7                | 36,6                 | 1. 5. 1. 54,0                    | 2. 32,1              | 10. 25. 34. 46,9                | 27,9                 |
| 1894    | 7. 4. 6. 55,6                  | 37,5                 | 4. 3. 45. 13,0                   | 2. 34,1              | 11. 14. 54. 30,2                | 28,2                 |
| 1895    | 11. 13. 30. 0,5                | 38,4                 | 7. 2. 28. 32,1                   | 2. 36,1              | 0. 4. 14. 13,6                  | 28,5                 |
| 1896 B. | 3. 22. 53. 5,3                 | 39,3                 | 10. 1. 11. 51,2                  | 2. 38,1              | 0. 23. 33. 57,0                 | 28,8                 |
| 1897    | 8. 15. 26. 45,2                | 40,2                 | 1. 12. 59. 4,3                   | 2. 40,1              | 1. 12. 56. 51,0                 | 29,1                 |
| 1898    | 0. 24. 49. 50,1                | 41,2                 | 4. 11. 42. 23,4                  | 2. 42,0              | 2. 2. 16. 34,3                  | 29,5                 |
| 1899    | 5. 4. 12. 55,0                 | 42,2                 | 7. 10. 25. 42,5                  | 2. 44,0              | 2. 21. 36. 17,7                 | 29,9                 |
| 1900 C. | 9. 13. 35. 59,9                | 43,2                 | 10. 9. 9. 1,5                    | 2. 46,0              | 3. 10. 56. 1,0                  | 30,3                 |



TABLE II.

Quantities to be added to the Epochs of Table I. to obtain those of other Centuries.

| YEARS.        | Mean Longitude<br>of the Moon.                         | Mean Anomaly.                    | Supplement of<br>the Node.       |
|---------------|--------------------------------------------------------|----------------------------------|----------------------------------|
| -1200         | 2 <sup>s</sup> . 3°. 34'. 19",0                        | 9 <sup>s</sup> . 20°. 55'. 13",7 | 6 <sup>s</sup> . 10°. 17'. 43",6 |
| 1100          | 0. 11. 27. 2,5                                         | 4. 9. 44. 31,6                   | 10. 24. 29. 25,6                 |
| 1000          | 10. 19. 19. 46,0                                       | 10. 28. 33. 49,4                 | 3. 8. 41. 7,6                    |
| 900           | 8. 27. 12. 29,5                                        | 5. 17. 23. 7,2                   | 7. 22. 52. 49,6                  |
| 800           | 7. 5. 5. 13,0                                          | 0. 6. 12. 25,1                   | 0. 7. 4. 31,6                    |
| 700           | 5. 12. 57. 56,5                                        | 6. 25. 1. 42,9                   | 4. 21. 16. 13,6                  |
| -600          | 3. 20. 50. 40,0                                        | 1. 13. 51. 0,7                   | 9. 5. 27. 55,6                   |
| 500           | 1. 28. 43. 23,5                                        | 8. 2. 40. 18,6                   | 1. 19. 39. 37,6                  |
| 400           | 0. 6. 36. 7,0                                          | 2. 21. 29. 36,4                  | 6. 3. 51. 19,6                   |
| 300 J.        | 10. 14. 28. 50,5                                       | 9. 10. 18. 54,2                  | 10. 18. 3. 1,6                   |
| 300 G.        | 6. 2. 43. 0,2                                          | 4. 29. 39. 54,5                  | 10. 17. 31. 15,2                 |
| 200           | 4. 10. 35. 43,6                                        | 11. 18. 29. 12,3                 | 3. 1. 42. 57,2                   |
| -100          | 2. 5. 17. 51,8                                         | 5. 24. 14. 36,2                  | 7. 15. 51. 28,6                  |
| +100          | 9. 24. 42. 8,2                                         | 6. 5. 45. 23,8                   | 4. 14. 8. 31,4                   |
| 200           | 8. 2. 34. 51,7                                         | 0. 24. 34. 41,7                  | 8. 28. 20. 13,4                  |
| 300           | 5. 27. 16. 59,8                                        | 7. 0. 20. 5,5                    | 1. 12. 28. 44,8                  |
| 400           | 3. 21. 59. 8,0                                         | 1. 6. 5. 29,3                    | 5. 26. 37. 16,2                  |
| 500           | 1. 16. 41. 16,2                                        | 7. 11. 50. 53,1                  | 10. 10. 45. 47,6                 |
| 600           | 11. 24. 33. 59,7                                       | 2. 0. 40. 11,0                   | 2. 24. 57. 29,6                  |
| 700           | 9. 19. 16. 7,9                                         | 8. 6. 25. 34,8                   | 7. 9. 6. 1,0                     |
| 800           | 7. 13. 58. 16,0                                        | 2. 12. 10. 58,6                  | 11. 23. 14. 32,4                 |
| 900           | 5. 8. 40. 24,0                                         | 8. 17. 56. 22,5                  | 4. 7. 23. 3,8                    |
| 1000          | 3. 16. 33. 7,7                                         | 3. 6. 45. 40,3                   | 8. 21. 34. 45,8                  |
| Julian Years. | First Supplement to Table II. for preceding Centuries. |                                  |                                  |
| 100           | 1 <sup>s</sup> . 22°. 7'. 16",5                        | 5 <sup>s</sup> . 11°. 10'. 42",2 | 7 <sup>s</sup> . 15°. 48'. 18",0 |
| 200           | 3. 14. 14. 33,0                                        | 10. 22. 21. 24,3                 | 3. 1. 36. 36,0                   |
| 300           | 5. 6. 21. 49,5                                         | 4. 3. 32. 6,5                    | 10. 17. 24. 54,0                 |
| 400           | 6. 28. 29. 6,0                                         | 9. 14. 42. 48,7                  | 6. 3. 13. 12,0                   |
| 800           | 1. 26. 58. 12,0                                        | 6. 29. 25. 37,4                  | 0. 6. 26. 24,0                   |
| 1200          | 8. 25. 27. 18,0                                        | 4. 14. 8. 26,0                   | 6. 9. 39. 36,0                   |
| 1600          | 3. 23. 56. 24,0                                        | 1. 28. 51. 14,7                  | 0. 12. 52. 48,0                  |
| 2000          | 10. 22. 25. 30,0                                       | 11. 13. 34. 3,4                  | 6. 16. 6. 0,0                    |
| Greg. Years.  | Second Supplement to Table II. for Centuries to come.  |                                  |                                  |
| 100           | 9 <sup>s</sup> . 24°. 42'. 8",2                        | 6 <sup>s</sup> . 5°. 45'. 23",8  | 4 <sup>s</sup> . 14°. 8'. 31",4  |
| 200           | 7. 19. 24. 16,4                                        | 0. 11. 30. 47,7                  | 8. 28. 17. 2,8                   |
| 300           | 5. 14. 6. 24,5                                         | 6. 17. 16. 11,5                  | 1. 12. 25. 34,2                  |
| 400 B.        | 3. 21. 59. 8,0                                         | 1. 6. 5. 29,3                    | 5. 26. 37. 16,2                  |
| 800 B.        | 7. 13. 58. 16,0                                        | 2. 12. 10. 58,7                  | 11. 23. 14. 32,4                 |
| 1200 B.       | 11. 5. 57. 24,0                                        | 3. 18. 16. 28,0                  | 5. 19. 51. 48,6                  |
| 1600 B.       | 2. 27. 56. 32,0                                        | 4. 24. 21. 57,3                  | 11. 16. 29. 4,8                  |
| 2000 B.       | 6. 19. 55. 40,2                                        | 6. 0. 27. 26,6                   | 5. 13. 6. 21,0                   |



TABLE III.

Secular Equations.

| YEARS.<br>of the<br>Common<br>Era. | Longitude.<br>+ | Anomaly.<br>+  | Supplement<br>of the Node.<br>— |
|------------------------------------|-----------------|----------------|---------------------------------|
| — 1000                             | 1°. 57'. 37",0  | 7°. 50'. 30",0 | 1°. 26'. 30",0                  |
| 900                                | 1. 49. 17,0     | 7. 17. 8,0     | 1. 20. 22,0                     |
| 800                                | 1. 41. 14,0     | 6. 44. 56,0    | 1. 14. 27,0                     |
| 700                                | 1. 33. 28,0     | 6. 13. 53,0    | 1. 8. 45,0                      |
| 600                                | 1. 26. 1,0      | 5. 44. 2,0     | 1. 3. 15,0                      |
| 500                                | 1. 18. 50,0     | 5. 15. 42,0    | 0. 57. 59,0                     |
| 400                                | 1. 11. 58,0     | 4. 47. 54,0    | 0. 52. 56,0                     |
| 300                                | 1. 5. 24,0      | 4. 21. 34,0    | 0. 48. 6,0                      |
| 200                                | 0. 59. 8,0      | 3. 56. 34,0    | 0. 43. 30,0                     |
| — 100                              | 0. 53. 11,0     | 3. 32. 43,0    | 0. 39. 7,0                      |
| 0                                  | 0. 47. 31,0     | 3. 10. 6,0     | 0. 34. 57,0                     |
| + 100                              | 0. 42. 10,0     | 2. 48. 42,0    | 0. 31. 1,0                      |
| 200                                | 0. 37. 8,0      | 2. 28. 33,0    | 0. 27. 19,0                     |
| 300                                | 0. 32. 25,0     | 2. 9. 39,0     | 0. 23. 50,0                     |
| 400                                | 0. 28. 0,0      | 1. 52. 0,0     | 0. 20. 35,0                     |
| 500                                | 0. 23. 54,0     | 1. 35. 36,0    | 0. 17. 35,0                     |
| 600                                | 0. 20. 7,0      | 1. 20. 29,0    | 0. 14. 48,0                     |
| 700                                | 0. 16. 40,0     | 1. 6. 38,0     | 0. 12. 15,0                     |
| 800                                | 0. 13. 31,0     | 0. 54. 5,0     | 0. 9. 56,0                      |
| 900                                | 0. 10. 42,0     | 0. 42. 48,0    | 0. 7. 52,0                      |
| 1000                               | 0. 8. 12,0      | 0. 32. 50,0    | 0. 6. 2,0                       |
| 1100                               | 0. 6. 2,5       | 0. 24. 10,0    | 0. 4. 27,0                      |
| 1200                               | 0. 4. 12,2      | 0. 16. 49,0    | 0. 3. 6,0                       |
| 1300                               | 0. 2. 41,1      | 0. 10. 47,0    | 0. 1. 59,0                      |
| 1400                               | 0. 1. 31,1      | 0. 6. 4,0      | 0. 1. 7,0                       |
| 1500                               | 0. 0. 40,6      | 0. 2. 42,0     | 0. 0. 30,0                      |
| 1600                               | 0. 0. 10,2      | 0. 0. 41,0     | 0. 0. 7,0                       |
| 1700                               | 0. 0. 0,0       | 0. 0. 0,0      | 0. 0. 0,0                       |
| 1800                               | 0. 0. 10,2      | 0. 0. 41,0     | 0. 0. 7,0                       |
| 1900                               | 0. 0. 40,9      | 0. 2. 44,0     | 0. 0. 30,0                      |
| 2000                               | 0. 1. 32,1      | 0. 6. 8,0      | 0. 1. 8,0                       |
| 2100                               | 0. 2. 44,0      | 0. 10. 56,0    | 0. 2. 1,0                       |
| 2200                               | 0. 4. 16,9      | 0. 17. 8,0     | 0. 3. 9,0                       |
| 2300                               | 0. 6. 10,5      | 0. 24. 42,0    | 0. 4. 33,0                      |
| 2400                               | 0. 8. 25,3      | 0. 33. 41,0    | 0. 6. 12,0                      |
| 2500                               | 0. 11. 1,1      | 0. 44. 4,0     | 0. 8. 6,0                       |
| 2600                               | 0. 13. 58,2     | 0. 55. 53,0    | 0. 10. 16,0                     |
| 2700                               | 0. 17. 16,7     | 1. 9. 7,0      | 0. 12. 43,0                     |
| 2800                               | 0. 20. 56,6     | 1. 23. 46,0    | 0. 15. 24,0                     |
| 2900                               | 0. 24. 58,2     | 1. 39. 53,0    | 0. 18. 22,0                     |
| 3000                               | 0. 29. 21,4     | 1. 57. 26,0    | 0. 21. 35,0                     |
| 3101                               | 0. 34. 6,5      | 2. 16. 26,0    | 0. 25. 5,0                      |
| 3200                               | 0. 39. 13,4     | 2. 36. 54,0    | 0. 28. 51,0                     |
| 3300                               | 0. 44. 42,4     | 2. 58. 50,0    | 0. 32. 53,0                     |
| 3400                               | 0. 50. 33,6     | 3. 22. 14,0    | 0. 37. 11,0                     |
| 3500                               | 0. 56. 46,9     | 3. 47. 8,0     | 0. 41. 45,0                     |

TABLE IV.

Equation of a Long Period.

ARG. (Mean Anom.  $\zeta$  — Mean Long.  $\zeta$   
+ 2 Suppl. of the Node + 3 Perigee  $\odot$ ).

|    | Os—<br>VI+ | Is—<br>VII+ | IIs—<br>VIII+ |     |
|----|------------|-------------|---------------|-----|
| 0° | 0",0       | 7",0        | 12",1         | 30° |
| 1  | 0,3        | 7,2         | 12,2          | 29  |
| 2  | 0,5        | 7,4         | 12,4          | 28  |
| 3  | 0,7        | 7,6         | 12,5          | 27  |
| 4  | 1,0        | 7,8         | 12,6          | 26  |
| 5  | 1,2        | 8,0         | 12,7          | 25  |
| 6  | 1,5        | 8,2         | 12,8          | 24  |
| 7  | 1,7        | 8,4         | 12,9          | 23  |
| 8  | 2,0        | 8,6         | 13,0          | 22  |
| 9  | 2,2        | 8,8         | 13,1          | 21  |
| 10 | 2,4        | 9,0         | 13,2          | 20  |
| 11 | 2,7        | 9,2         | 13,2          | 19  |
| 12 | 2,9        | 9,4         | 13,3          | 18  |
| 13 | 3,2        | 9,5         | 13,4          | 17  |
| 14 | 3,4        | 9,7         | 13,5          | 16  |
| 15 | 3,6        | 9,9         | 13,5          | 15  |
| 16 | 3,9        | 10,1        | 13,6          | 14  |
| 17 | 4,1        | 10,2        | 13,7          | 13  |
| 18 | 4,4        | 10,4        | 13,7          | 12  |
| 19 | 4,6        | 10,5        | 13,8          | 11  |
| 20 | 4,8        | 10,7        | 13,8          | 10  |
| 21 | 5,0        | 10,9        | 13,8          | 9   |
| 22 | 5,3        | 11,0        | 13,9          | 8   |
| 23 | 5,5        | 11,2        | 13,9          | 7   |
| 24 | 5,7        | 11,3        | 13,9          | 6   |
| 25 | 5,9        | 11,5        | 13,9          | 5   |
| 26 | 6,2        | 11,6        | 14,0          | 4   |
| 27 | 6,4        | 11,8        | 14,0          | 3   |
| 28 | 6,6        | 11,9        | 14,0          | 2   |
| 29 | 6,8        | 12,0        | 14,0          | 1   |
| 30 | 7,0        | 12,1        | 14,0          | 0   |
|    | V—<br>XI+  | IV—<br>X+   | III—<br>IX+   |     |

This Equation is already contained in  
the Epochs from 1790 to 1900, and is  
only to be used for all other Centuries.



TABLE V.

Motions for Days.

| YEARS. |         | JANUARY.                       |                  |                               | FEBRUARY.                      |                    |                               |
|--------|---------|--------------------------------|------------------|-------------------------------|--------------------------------|--------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon. | Mean Anomaly.    | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon. | Mean Anomaly.      | Supplement<br>of<br>the Node. |
| 1      | 1       | 0°. 0°. 0'. 0",0               | 0°. 0°. 0'. 0",0 | 0°. 0'. 0",0                  | 1°. 18°. 28'. 5",8             | 1°. 15°. 0'. 53",1 | 1°. 38'. 29",8                |
| 2      | 2       | 0. 13. 10. 35,0                | 0. 13. 3. 54,0   | 0. 3. 10,6                    | 2. 1. 38. 40,9                 | 1. 28. 4. 47,0     | 1. 41. 40,5                   |
| 3      | 3       | 0. 26. 21. 10,1                | 0. 26. 7. 47,9   | 0. 6. 21,3                    | 2. 14. 49. 15,9                | 2. 11. 8. 41,0     | 1. 44. 51,1                   |
| 4      | 4       | 1. 9. 31. 45,1                 | 1. 9. 11. 41,9   | 0. 9. 31,9                    | 2. 27. 59. 50,9                | 2. 24. 12. 35,0    | 1. 48. 1,7                    |
| 5      | 5       | 1. 22. 42. 20,1                | 1. 22. 15. 35,9  | 0. 12. 42,6                   | 3. 11. 10. 25,9                | 3. 7. 16. 29,0     | 1. 51. 12,4                   |
| 6      | 6       | 2. 5. 52. 55,1                 | 2. 5. 19. 29,9   | 0. 15. 53,2                   | 3. 24. 21. 1,0                 | 3. 20. 20. 22,9    | 1. 54. 23,0                   |
| 7      | 7       | 2. 19. 3. 30,2                 | 2. 18. 23. 23,8  | 0. 19. 3,8                    | 4. 7. 31. 36,0                 | 4. 3. 24. 16,9     | 1. 57. 33,7                   |
| 8      | 8       | 3. 2. 14. 5,2                  | 3. 1. 27. 17,8   | 0. 22. 14,5                   | 4. 20. 42. 11,0                | 4. 16. 28. 10,9    | 2. 0. 44,3                    |
| 9      | 9       | 3. 15. 24. 40,2                | 3. 14. 31. 11,8  | 0. 25. 25,1                   | 5. 3. 52. 46,1                 | 4. 29. 32. 4,8     | 2. 3. 54,9                    |
| 10     | 10      | 3. 28. 35. 15,3                | 3. 27. 35. 5,7   | 0. 28. 35,8                   | 5. 17. 3. 21,1                 | 5. 12. 35. 58,8    | 2. 7. 5,6                     |
| 11     | 11      | 4. 11. 45. 50,3                | 4. 10. 38. 59,7  | 0. 31. 46,4                   | 6. 0. 13. 56,1                 | 5. 25. 39. 52,8    | 2. 10. 16,2                   |
| 12     | 12      | 4. 24. 56. 25,3                | 4. 23. 42. 53,7  | 0. 34. 57,0                   | 6. 13. 24. 31,1                | 6. 8. 43. 46,7     | 2. 13. 26,9                   |
| 13     | 13      | 5. 8. 7. 0,3                   | 5. 6. 46. 47,6   | 0. 38. 7,7                    | 6. 26. 35. 6,2                 | 6. 21. 47. 40,7    | 2. 16. 37,5                   |
| 14     | 14      | 5. 21. 17. 35,4                | 5. 19. 50. 41,6  | 0. 41. 18,3                   | 7. 9. 45. 41,2                 | 7. 4. 51. 34,7     | 2. 19. 48,1                   |
| 15     | 15      | 6. 4. 28. 10,4                 | 6. 2. 54. 35,6   | 0. 44. 29,0                   | 7. 22. 56. 16,2                | 7. 17. 55. 28,7    | 2. 22. 58,8                   |
| 16     | 16      | 6. 17. 38. 45,4                | 6. 15. 58. 29,6  | 0. 47. 39,6                   | 8. 6. 6. 51,2                  | 8. 0. 59. 22,6     | 2. 26. 9,4                    |
| 17     | 17      | 7. 0. 49. 20,4                 | 6. 29. 2. 23,5   | 0. 50. 50,2                   | 8. 19. 17. 26,3                | 8. 14. 3. 16,6     | 2. 29. 20,1                   |
| 18     | 18      | 7. 13. 59. 55,5                | 7. 12. 6. 17,5   | 0. 54. 0,9                    | 9. 2. 28. 1,3                  | 8. 27. 7. 10,6     | 2. 32. 30,7                   |
| 19     | 19      | 7. 27. 10. 30,5                | 7. 25. 10. 11,5  | 0. 57. 11,5                   | 9. 15. 38. 36,3                | 9. 10. 11. 4,5     | 2. 35. 41,3                   |
| 20     | 20      | 8. 10. 21. 5,5                 | 8. 8. 14. 5,4    | 1. 0. 22,1                    | 9. 28. 49. 11,4                | 9. 23. 14. 58,5    | 2. 38. 52,0                   |
| 21     | 21      | 8. 23. 31. 40,5                | 8. 21. 17. 59,4  | 1. 3. 32,8                    | 10. 11. 59. 46,4               | 10. 6. 18. 52,5    | 2. 42. 2,6                    |
| 22     | 22      | 9. 6. 42. 15,6                 | 9. 4. 21. 53,4   | 1. 6. 43,4                    | 10. 25. 10. 21,4               | 10. 19. 22. 46,5   | 2. 45. 13,2                   |
| 23     | 23      | 9. 19. 52. 50,6                | 9. 17. 25. 47,3  | 1. 9. 54,1                    | 11. 8. 20. 56,4                | 11. 2. 26. 40,4    | 2. 48. 23,9                   |
| 24     | 24      | 10. 3. 3. 25,6                 | 10. 0. 29. 41,3  | 1. 13. 4,7                    | 11. 21. 31. 31,5               | 11. 15. 30. 34,4   | 2. 51. 34,5                   |
| 25     | 25      | 10. 16. 14. 0,6                | 10. 13. 33. 35,3 | 1. 16. 15,3                   | 0. 4. 42. 6,5                  | 11. 28. 34. 28,4   | 2. 54. 45,2                   |
| 26     | 26      | 10. 29. 24. 35,7               | 10. 26. 37. 29,3 | 1. 19. 26,0                   | 0. 17. 52. 41,5                | 0. 11. 38. 22,3    | 2. 57. 55,8                   |
| 27     | 27      | 11. 12. 35. 10,7               | 11. 9. 41. 23,2  | 1. 22. 36,6                   | 1. 1. 3. 16,5                  | 0. 24. 42. 16,3    | 3. 1. 6,4                     |
| 28     | 28      | 11. 25. 45. 45,7               | 11. 22. 45. 17,2 | 1. 25. 47,3                   | 1. 14. 13. 51,6                | 1. 7. 46. 10,3     | 3. 4. 17,1                    |
| 29     | 29      | 0. 8. 56. 20,8                 | 0. 5. 49. 11,2   | 1. 28. 57,9                   | 1. 27. 24. 26,6                | 1. 20. 50. 4,2     | 3. 7. 27,7                    |
| 30     | 30      | 0. 22. 6. 55,8                 | 0. 18. 53. 5,1   | 1. 32. 8,5                    |                                |                    |                               |
| 31     | 31      | 1. 5. 17. 30,8                 | 1. 1. 56. 59,1   | 1. 35. 19,2                   |                                |                    |                               |



## Continuation of TABLE V.

Motions for Days.

| YEARS. |         | MARCH.                                        |                                              |                               | APRIL.                                        |                                              |                               |
|--------|---------|-----------------------------------------------|----------------------------------------------|-------------------------------|-----------------------------------------------|----------------------------------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon.                | Mean Anomaly.                                | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon.                | Mean Anomaly.                                | Supplement<br>of<br>the Node. |
| 1      | 0       | 1 <sup>s</sup> . 27 <sup>o</sup> . 24'. 26",6 | 1 <sup>s</sup> . 20 <sup>o</sup> . 50'. 4",2 | 3 <sup>o</sup> . 7'. 27",7    | 3 <sup>s</sup> . 15 <sup>o</sup> . 52'. 32",4 | 3 <sup>s</sup> . 5 <sup>o</sup> . 50'. 57",3 | 4 <sup>o</sup> . 45'. 57",5   |
| 2      | 1       | 2 10. 35. 1,6                                 | 2. 3. 53. 58,2                               | 3. 10. 38,4                   | 3. 29. 3. 7,5                                 | 3. 18. 54. 51,3                              | 4. 49. 8,2                    |
| 3      | 2       | 2. 23. 45. 36,6                               | 2. 16. 57. 52,2                              | 3. 13. 49,0                   | 4. 12. 13. 42,5                               | 4. 1. 58. 45,2                               | 4. 52. 18,8                   |
| 4      | 3       | 3. 6. 56. 11,7                                | 3. 0. 1. 46,1                                | 3. 16. 59,6                   | 4. 25. 24. 17,5                               | 4. 15. 2. 39,2                               | 4. 55. 29,5                   |
| 5      | 4       | 3. 20. 6. 46,7                                | 3. 13. 5. 40,1                               | 3. 20. 10,3                   | 5. 8. 34. 52,5                                | 4. 28. 6. 33,2                               | 4. 58. 40,1                   |
| 6      | 5       | 4. 3. 17. 21,7                                | 3. 26. 9. 34,1                               | 3. 23. 20,9                   | 5. 21. 45. 27,6                               | 5. 11. 10. 27,2                              | 5. 1. 50,7                    |
| 7      | 6       | 4. 16. 27. 56,8                               | 4. 9. 13. 28,1                               | 3. 26. 31,6                   | 6. 4. 56. 2,6                                 | 5. 24. 14. 21,1                              | 5. 5. 1,4                     |
| 8      | 7       | 4. 29. 38. 31,8                               | 4. 22. 17. 22,0                              | 3. 29. 42,2                   | 6. 18. 6. 37,6                                | 6. 7. 18. 15,1                               | 5. 8. 12,0                    |
| 9      | 8       | 5. 12. 49. 6,8                                | 5. 5. 21. 16,0                               | 3. 32. 52,8                   | 7. 1. 17. 12,6                                | 6. 20. 22. 9,1                               | 5. 11. 22,7                   |
| 10     | 9       | 5. 25. 59. 41,8                               | 5. 18. 25. 10,0                              | 3. 36. 3,5                    | 7. 14. 27. 47,7                               | 7. 3. 26. 3,1                                | 5. 14. 33,3                   |
| 11     | 10      | 6. 9. 10. 16,9                                | 6. 1. 29. 3,9                                | 3. 39. 14,1                   | 7. 27. 38. 22,7                               | 7. 16. 29. 57,0                              | 5. 17. 43,9                   |
| 12     | 11      | 6. 22. 20. 51,9                               | 6. 14. 32. 57,9                              | 3. 42. 24,7                   | 8. 10. 48. 57,7                               | 7. 29. 33. 51,0                              | 5. 20. 54,6                   |
| 13     | 12      | 7. 5. 31. 26,9                                | 6. 27. 36. 51,9                              | 3. 45. 35,4                   | 8. 23. 59. 32,8                               | 8. 12. 37. 45,0                              | 5. 24. 5,2                    |
| 14     | 13      | 7. 18. 42. 1,9                                | 7. 10. 40. 45,8                              | 3. 48. 46,0                   | 9. 7. 10. 7,8                                 | 8. 25. 41. 38,9                              | 5. 27. 15,9                   |
| 15     | 14      | 8. 1. 52. 37,0                                | 7. 23. 44. 39,8                              | 3. 51. 56,7                   | 9. 20. 20. 42,8                               | 9. 8. 45. 32,9                               | 5. 30. 26,5                   |
| 16     | 15      | 8. 15. 3. 12,0                                | 8. 6. 48. 33,8                               | 3. 55. 7,3                    | 10. 3. 31. 17,8                               | 9. 21. 49. 26,9                              | 5. 33. 37,1                   |
| 17     | 16      | 8. 28. 13. 47,0                               | 8. 19. 52. 27,8                              | 3. 58. 17,9                   | 10. 16. 41. 52,9                              | 10. 4. 53. 20,8                              | 5. 36. 47,8                   |
| 18     | 17      | 9. 11. 24. 22,1                               | 9. 2. 56. 21,7                               | 4. 1. 28,6                    | 10. 29. 52. 27,9                              | 10. 17. 57. 14,8                             | 5. 39. 58,4                   |
| 19     | 18      | 9. 24. 34. 57,1                               | 9. 16. 0. 15,7                               | 4. 4. 39,2                    | 11. 13. 3. 2,9                                | 11. 1. 1. 8,8                                | 5. 43. 9,0                    |
| 20     | 19      | 10. 7. 45. 32,1                               | 9. 29. 4. 9,7                                | 4. 7. 49,9                    | 11. 26. 13. 37,9                              | 11. 14. 5. 2,7                               | 5. 46. 19,7                   |
| 21     | 20      | 10. 20. 56. 7,1                               | 10. 12. 8. 3,6                               | 4. 11. 0,5                    | 0. 9. 24. 13,0                                | 11. 27. 8. 56,7                              | 5. 49. 30,3                   |
| 22     | 21      | 11. 4. 6. 42,2                                | 10. 25. 11. 57,6                             | 4. 14. 11,1                   | 0. 22. 34. 48,0                               | 0. 10. 12. 50,7                              | 5. 52. 41,0                   |
| 23     | 22      | 11. 17. 17. 17,2                              | 11. 8. 15. 51,6                              | 4. 17. 21,8                   | 1. 5. 45. 23,0                                | 0. 23. 16. 44,7                              | 5. 55. 51,6                   |
| 24     | 23      | 0. 0. 27. 52,2                                | 11. 21. 19. 45,5                             | 4. 20. 32,4                   | 1. 18. 55. 58,0                               | 1. 6. 20. 38,6                               | 5. 59. 2,2                    |
| 25     | 24      | 0. 13. 38. 27,2                               | 0. 4. 23. 39,5                               | 4. 23. 43,1                   | 2. 2. 6. 33,1                                 | 1. 19. 24. 32,6                              | 6. 2. 12,9                    |
| 26     | 25      | 0. 26. 49. 2,3                                | 0. 17. 27. 33,5                              | 4. 26. 53,7                   | 2. 15. 17. 8,1                                | 2. 2. 28. 26,6                               | 6. 5. 23,5                    |
| 27     | 26      | 1. 9. 59. 37,3                                | 1. 0. 31. 27,5                               | 4. 30. 4,3                    | 2. 28. 27. 43,1                               | 2. 15. 32. 20,5                              | 6. 8. 34,2                    |
| 28     | 27      | 1. 23. 10. 12,3                               | 1. 13. 35. 21,4                              | 4. 33. 15,0                   | 3. 11. 38. 18,2                               | 2. 28. 36. 14,5                              | 6. 11. 44,8                   |
| 29     | 28      | 2. 6. 20. 47,3                                | 1. 26. 39. 15,4                              | 4. 36. 25,6                   | 3. 24. 48. 53,2                               | 3. 11. 40. 8,5                               | 6. 14. 55,4                   |
| 30     | 29      | 2. 19. 31. 22,4                               | 2. 9. 43. 9,4                                | 4. 39. 36,3                   | 4. 7. 59. 28,2                                | 3. 24. 44. 2,4                               | 6. 18. 6,1                    |
| 31     | 30      | 3. 2. 41. 57,4                                | 2. 22. 47. 3,3                               | 4. 42. 46,9                   | 4. 21. 10. 3,2                                | 4. 7. 47. 56,4                               | 6. 21. 16,7                   |
|        | 31      | 3. 15. 52. 32,4                               | 3. 5. 50. 57,3                               | 4. 45. 57,5                   |                                               |                                              |                               |



## Continuation of TABLE V.

## Motions for Days.

| YEARS. |         | M A Y.                                        |                                               |                               | J U N E.                                     |                                                |                               |
|--------|---------|-----------------------------------------------|-----------------------------------------------|-------------------------------|----------------------------------------------|------------------------------------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon.                | Mean Anomaly.                                 | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon.               | Mean Anomaly.                                  | Supplement<br>of<br>the Node. |
| 1      | 0       | 4 <sup>s</sup> . 21 <sup>o</sup> . 10'. 3'',2 | 4 <sup>s</sup> . 7 <sup>o</sup> . 47'. 56'',4 | 6 <sup>o</sup> . 21'. 16'',7  | 6 <sup>s</sup> . 9 <sup>o</sup> . 38'. 9'',1 | 5 <sup>s</sup> . 22 <sup>o</sup> . 48'. 49'',5 | 7 <sup>o</sup> . 59'. 46'',5  |
| 2      | 1       | 5. 4. 20. 38,3                                | 4. 20. 51. 50,4                               | 6. 24. 27,4                   | 6. 22. 48. 44,1                              | 6. 5. 52. 43,5                                 | 8. 2. 57,2                    |
| 3      | 2       | 5. 17. 31. 13,3                               | 5. 3. 55. 44,4                                | 6. 27. 38,0                   | 7. 5. 59. 19,1                               | 6. 18. 56. 37,4                                | 8. 6. 7,8                     |
| 4      | 3       | 6. 0. 41. 48,3                                | 5. 16. 59. 38,3                               | 6. 30. 48,6                   | 7. 19. 9. 54,2                               | 7. 2. 0. 31,4                                  | 8. 9. 18,5                    |
| 5      | 4       | 6. 13. 52. 23,3                               | 6. 0. 3. 32,3                                 | 6. 33. 59,3                   | 8. 2. 20. 29,2                               | 7. 15. 4. 25,4                                 | 8. 12. 29,1                   |
| 6      | 5       | 6. 27. 2. 58,4                                | 6. 13. 7. 26,3                                | 6. 37. 9,9                    | 8. 15. 31. 4,2                               | 7. 28. 8. 19,3                                 | 8. 15. 39,7                   |
| 7      | 6       | 7. 10. 13. 33,4                               | 6. 26. 11. 20,2                               | 6. 40. 20,6                   | 8. 28. 41. 39,2                              | 8. 11. 12. 13,3                                | 8. 18. 50,4                   |
| 8      | 7       | 7. 23. 24. 8,4                                | 7. 9. 15. 14,2                                | 6. 43. 31,2                   | 9. 11. 52. 14,3                              | 8. 24. 16. 7,3                                 | 8. 22. 1,0                    |
| 9      | 8       | 8. 6. 34. 43,5                                | 7. 22. 19. 8,2                                | 6. 46. 41,8                   | 9. 25. 2. 49,3                               | 9. 7. 20. 1,2                                  | 8. 25. 11,7                   |
| 10     | 9       | 8. 19. 45. 18,5                               | 8. 5. 23. 2,1                                 | 6. 49. 52,5                   | 10. 8. 13. 24,3                              | 9. 20. 23. 55,2                                | 8. 28. 22,3                   |
| 11     | 10      | 9. 2. 55. 53,5                                | 8. 18. 26. 56,1                               | 6. 53. 3,1                    | 10. 21. 23. 59,3                             | 10. 3. 27. 49,2                                | 8. 31. 32,9                   |
| 12     | 11      | 9. 16. 6. 28,5                                | 9. 1. 30. 50,1                                | 6. 56. 13,7                   | 11. 4. 34. 34,4                              | 10. 16. 31. 43,2                               | 8. 34. 43,6                   |
| 13     | 12      | 9. 29. 17. 3,6                                | 9. 14. 34. 44,1                               | 6. 59. 24,4                   | 11. 17. 45. 9,4                              | 10. 29. 35. 37,1                               | 8. 37. 54,2                   |
| 14     | 13      | 10. 12. 27. 38,6                              | 9. 27. 38. 38,0                               | 7. 2. 35,0                    | 0. 0. 55. 44,4                               | 11. 12. 39. 31,1                               | 8. 41. 4,8                    |
| 15     | 14      | 10. 25. 38. 13,6                              | 10. 10. 42. 32,0                              | 7. 5. 45,7                    | 0. 14. 6. 19,5                               | 11. 25. 43. 25,1                               | 8. 44. 15,5                   |
| 16     | 15      | 11. 8. 48. 48,6                               | 10. 23. 46. 26,0                              | 7. 8. 56,3                    | 0. 27. 16. 54,5                              | 0. 8. 47. 19,0                                 | 8. 47. 26,1                   |
| 17     | 16      | 11. 21. 59. 23,7                              | 11. 6. 50. 19,9                               | 7. 12. 6,9                    | 1. 10. 27. 29,5                              | 0. 21. 51. 13,0                                | 8. 50. 36,8                   |
| 18     | 17      | 0. 5. 9. 58,7                                 | 11. 19. 54. 13,9                              | 7. 15. 17,6                   | 1. 23. 38. 4,5                               | 1. 4. 55. 7,0                                  | 8. 53. 47,4                   |
| 19     | 18      | 0. 18. 20. 33,7                               | 0. 2. 58. 7,9                                 | 7. 18. 28,2                   | 2. 6. 48. 39,6                               | 1. 17. 59. 0,9                                 | 8. 56. 58,0                   |
| 20     | 19      | 1. 1. 31. 8,8                                 | 0. 16. 2. 1,8                                 | 7. 21. 38,9                   | 2. 19. 59. 14,6                              | 2. 1. 2. 54,9                                  | 9. 0. 8,7                     |
| 21     | 20      | 1. 14. 41. 43,8                               | 0. 29. 5. 55,8                                | 7. 24. 49,5                   | 3. 3. 9. 49,6                                | 2. 14. 6. 48,9                                 | 9. 3. 19,3                    |
| 22     | 21      | 1. 27. 52. 18,8                               | 1. 12. 9. 49,8                                | 7. 28. 0,1                    | 3. 16. 20. 24,6                              | 2. 27. 10. 42,9                                | 9. 6. 30,0                    |
| 23     | 22      | 2. 11. 2. 53,8                                | 1. 25. 13. 43,8                               | 7. 31. 10,8                   | 3. 29. 30. 59,7                              | 3. 10. 14. 36,8                                | 9. 9. 40,6                    |
| 24     | 23      | 2. 24. 13. 28,9                               | 2. 8. 17. 37,7                                | 7. 34. 21,4                   | 4. 12. 41. 34,7                              | 3. 23. 18. 30,8                                | 9. 12. 51,2                   |
| 25     | 24      | 3. 7. 24. 3,9                                 | 2. 21. 21. 31,7                               | 7. 37. 32,1                   | 4. 25. 52. 9,7                               | 4. 6. 22. 24,8                                 | 9. 16. 1,9                    |
| 26     | 25      | 3. 20. 34. 38,9                               | 3. 4. 25. 25,7                                | 7. 40. 42,7                   | 5. 9. 2. 44,7                                | 4. 19. 26. 18,7                                | 9. 19. 12,5                   |
| 27     | 26      | 4. 3. 45. 13,9                                | 3. 17. 29. 19,6                               | 7. 43. 53,3                   | 5. 22. 13. 19,8                              | 5. 2. 30. 12,7                                 | 9. 22. 23,2                   |
| 28     | 27      | 4. 16. 55. 49,0                               | 4. 0. 33. 13,6                                | 7. 47. 4,0                    | 6. 5. 23. 54,8                               | 5. 15. 34. 6,7                                 | 9. 25. 38,8                   |
| 29     | 28      | 5. 0. 6. 24,0                                 | 4. 13. 37. 7,6                                | 7. 50. 14,6                   | 6. 18. 34. 29,8                              | 5. 28. 38. 0,6                                 | 9. 28. 44,4                   |
| 30     | 29      | 5. 13. 16. 59,0                               | 4. 26. 41. 1,5                                | 7. 53. 25,3                   | 7. 1. 45. 4,9                                | 6. 11. 41. 54,6                                | 9. 31. 55,1                   |
| 31     | 30      | 5. 26. 27. 34,0                               | 5. 9. 44. 55,6                                | 7. 56. 35,9                   | 7. 14. 55. 39,9                              | 6. 24. 45. 48,6                                | 9. 35. 5,7                    |
|        | 31      | 6. 9. 38. 9,1                                 | 5. 22. 48. 49,5                               | 7. 59. 46,5                   |                                              |                                                |                               |



## Continuation of TABLE V.

Motions for Days.

| YEARS. |         | JULY.                                         |                                               |                               | AUGUST.                                      |                                              |                               |
|--------|---------|-----------------------------------------------|-----------------------------------------------|-------------------------------|----------------------------------------------|----------------------------------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon.                | Mean Anomaly.                                 | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon.               | Mean Anomaly.                                | Supplement<br>of<br>the Node. |
| 1      | 0       | 7 <sup>s</sup> . 14 <sup>o</sup> . 55'. 39",9 | 6 <sup>s</sup> . 24 <sup>o</sup> . 45'. 48",6 | 9 <sup>o</sup> . 35'. 5",7    | 9 <sup>s</sup> . 3 <sup>o</sup> . 23'. 45",7 | 8 <sup>s</sup> . 9 <sup>o</sup> . 46'. 41",7 | 11 <sup>o</sup> . 13'. 35",5  |
| 2      | 1       | 7. 28. 6. 14,9                                | 7. 7. 49. 42,6                                | 9. 38. 16,4                   | 9. 16. 34. 20,7                              | 8. 22. 50. 35,6                              | 11. 16. 46,2                  |
| 3      | 2       | 8. 11. 16. 49,9                               | 7. 20. 53. 36,5                               | 9. 41. 27,0                   | 9. 29. 44. 55,8                              | 9. 5. 54. 29,6                               | 11. 19. 56,8                  |
| 4      | 3       | 8. 24. 27. 25,0                               | 8. 3. 57. 30,5                                | 9. 44. 37,6                   | 10. 12. 55. 30,8                             | 9. 18. 58. 23,6                              | 11. 23. 7,5                   |
| 5      | 4       | 9. 7. 38. 0,0                                 | 8. 17. 1. 24,5                                | 9. 47. 48,3                   | 10. 26. 6. 5,8                               | 10. 2. 2. 17,5                               | 11. 26. 18,1                  |
| 6      | 5       | 9. 20. 48. 35,0                               | 9. 0. 5. 18,4                                 | 9. 50. 58,9                   | 11. 9. 16. 40,9                              | 10. 15. 6. 11,5                              | 11. 29. 28,7                  |
| 7      | 6       | 10. 3. 59. 10,0                               | 9. 13. 9. 12,4                                | 9. 54. 9,6                    | 11. 22. 27. 15,9                             | 10. 28. 10. 5,5                              | 11. 32. 39,4                  |
| 8      | 7       | 10. 17. 9. 45,1                               | 9. 26. 13. 6,4                                | 9. 57. 20,2                   | 0. 5. 37. 50,9                               | 11. 11. 13. 59,4                             | 11. 35. 50,0                  |
| 9      | 8       | 11. 0. 20. 20,1                               | 10. 9. 17. 0,3                                | 10. 0. 30,8                   | 0. 18. 48. 25,9                              | 11. 24. 17. 53,4                             | 11. 39. 0,6                   |
| 10     | 9       | 11. 13. 30. 55,1                              | 10. 22. 20. 54,3                              | 10. 3. 41,5                   | 1. 1. 59. 1,0                                | 0. 7. 21. 47,4                               | 11. 42. 11,3                  |
| 11     | 10      | 11. 26. 41. 30,2                              | 11. 5. 24. 48,3                               | 10. 6. 52,1                   | 1. 15. 9. 36,0                               | 0. 20. 25. 41,4                              | 11. 45. 21,9                  |
| 12     | 11      | 0. 9. 52. 5,2                                 | 11. 18. 28. 42,3                              | 10. 10. 2,8                   | 1. 28. 20. 11,0                              | 1. 3. 29. 35,3                               | 11. 48. 32,6                  |
| 13     | 12      | 0. 23. 2. 40,2                                | 0. 1. 32. 36,2                                | 10. 13. 13,4                  | 2. 11. 30. 46,0                              | 1. 16. 33. 29,3                              | 11. 51. 43,2                  |
| 14     | 13      | 1. 6. 13. 15,2                                | 0. 14. 36. 30,2                               | 10. 16. 24,0                  | 2. 24. 41. 21,1                              | 1. 29. 37. 23,3                              | 11. 54. 53,8                  |
| 15     | 14      | 1. 19. 23. 50,3                               | 0. 27. 40. 24,2                               | 10. 19. 34,7                  | 3. 7. 51. 56,1                               | 2. 12. 41. 17,2                              | 11. 58. 4,5                   |
| 16     | 15      | 2. 2. 34. 25,3                                | 1. 10. 44. 18,1                               | 10. 22. 45,3                  | 3. 21. 2. 31,1                               | 2. 25. 45. 11,2                              | 12. 1. 15,1                   |
| 17     | 16      | 2. 15. 45. 0,3                                | 1. 23. 48. 12,1                               | 10. 25. 55,9                  | 4. 4. 13. 6,2                                | 3. 8. 49. 5,2                                | 12. 4. 25,8                   |
| 18     | 17      | 2. 28. 55. 35,3                               | 2. 6. 52. 6,1                                 | 10. 29. 6,6                   | 4. 17. 23. 41,2                              | 3. 21. 52. 59,2                              | 12. 7. 36,4                   |
| 19     | 18      | 3. 12. 6. 10,4                                | 2. 19. 56. 0,0                                | 10. 32. 17,2                  | 5. 0. 34. 16,2                               | 4. 4. 56. 53,1                               | 12. 10. 47,0                  |
| 20     | 19      | 3. 25. 16. 45,4                               | 3. 2. 59. 54,0                                | 10. 35. 27,9                  | 5. 13. 44. 51,2                              | 4. 18. 0. 47,1                               | 12. 13. 57,7                  |
| 21     | 20      | 4. 8. 27. 20,4                                | 3. 16. 3. 48,0                                | 10. 38. 38,5                  | 5. 26. 55. 26,3                              | 5. 1. 4. 41,1                                | 12. 17. 8,3                   |
| 22     | 21      | 4. 21. 37. 55,4                               | 3. 29. 7. 42,0                                | 10. 41. 49,1                  | 6. 10. 6. 1,3                                | 5. 14. 8. 35,0                               | 12. 20. 19,0                  |
| 23     | 22      | 5. 4. 48. 30,5                                | 4. 12. 11. 35,9                               | 10. 44. 59,8                  | 6. 23. 16. 36,3                              | 5. 27. 12. 29,0                              | 12. 23. 29,6                  |
| 24     | 23      | 5. 17. 59. 5,5                                | 4. 25. 15. 29,9                               | 10. 48. 10,4                  | 7. 6. 27. 11,3                               | 6. 10. 16. 23,0                              | 12. 26. 40,2                  |
| 25     | 24      | 6. 1. 9. 40,5                                 | 5. 8. 19. 23,9                                | 10. 51. 21,1                  | 7. 19. 37. 46,4                              | 6. 23. 20. 16,9                              | 12. 29. 50,9                  |
| 26     | 25      | 6. 14. 20. 15,6                               | 5. 21. 23. 17,8                               | 10. 54. 31,7                  | 8. 2. 48. 21,4                               | 7. 6. 24. 10,9                               | 12. 33. 1,5                   |
| 27     | 26      | 6. 27. 30. 50,6                               | 6. 4. 27. 11,8                                | 10. 57. 42,3                  | 8. 15. 58. 56,4                              | 7. 19. 28. 4,9                               | 12. 36. 12,2                  |
| 28     | 27      | 7. 10. 41. 25,6                               | 6. 17. 31. 5,8                                | 11. 0. 53,0                   | 8. 29. 9. 31,4                               | 8. 2. 31. 58,9                               | 12. 39. 22,8                  |
| 29     | 28      | 7. 23. 52. 0,6                                | 7. 0. 34. 59,7                                | 11. 4. 3,6                    | 9. 12. 20. 6,5                               | 8. 15. 35. 52,8                              | 12. 42. 33,4                  |
| 30     | 29      | 8. 7. 2. 35,7                                 | 7. 13. 38. 53,7                               | 11. 7. 14,3                   | 9. 25. 30. 41,5                              | 8. 28. 39. 46,8                              | 12. 45. 44,1                  |
| 31     | 30      | 8. 20. 13. 10,7                               | 7. 26. 42. 47,7                               | 11. 10. 24,9                  | 10. 8. 41. 16,5                              | 9. 11. 43. 40,8                              | 12. 48. 54,7                  |
|        | 31      | 9. 3. 23. 45,7                                | 8. 9. 46. 41,7                                | 11. 13. 35,5                  | 10. 21. 51. 51,6                             | 9. 24. 47. 34,7                              | 12. 52. 5,4                   |



## Continuation of TABLE V.

Motions for Days.

| YEARS. |         | SEPTEMBER.                     |                     |                               | OCTOBER.                       |                      |                               |
|--------|---------|--------------------------------|---------------------|-------------------------------|--------------------------------|----------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon. | Mean Anomaly.       | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon. | Mean Anomaly.        | Supplement<br>of<br>the Node. |
| 1      | 0       | 10°. 21°. 51'. 51",6           | 9°. 24°. 47'. 34",7 | 12°. 52'. 5",4                | 11°. 27°. 9'. 22",4            | 10°. 26°. 44'. 33",8 | 14°. 27'. 24",5               |
| 2      | 1       | 11. 5. 2. 26,6                 | 10. 7. 51. 28,7     | 12. 55. 16,0                  | 0. 10. 19. 57,4                | 11. 9. 48. 27,8      | 14. 30. 35,2                  |
| 3      | 2       | 11. 18. 13. 1,6                | 10. 20. 55. 22,7    | 12. 58. 26,6                  | 0. 23. 30. 32,4                | 11. 22. 52. 21,8     | 14. 33. 45,8                  |
| 4      | 3       | 0. 1. 23. 36,6                 | 11. 3. 59. 16,6     | 13. 1. 37,3                   | 1. 6. 41. 7,4                  | 0. 5. 56. 15,7       | 14. 36. 56,4                  |
| 5      | 4       | 0. 14. 34. 11,7                | 11. 17. 3. 10,6     | 13. 4. 47,9                   | 1. 19. 51. 42,5                | 0. 19. 0. 9,7        | 14. 40. 7,1                   |
| 6      | 5       | 0. 27. 44. 46,7                | 0. 0. 7. 4,6        | 13. 7. 58,6                   | 2. 3. 2. 17,5                  | 1. 2. 4. 3,7         | 14. 43. 17,7                  |
| 7      | 6       | 1. 10. 55. 21,7                | 0. 13. 10. 58,6     | 13. 11. 9,2                   | 2. 16. 12. 52,5                | 1. 15. 7. 57,7       | 14. 46. 28,4                  |
| 8      | 7       | 1. 24. 5. 56,7                 | 0. 26. 14. 52,5     | 13. 14. 19,8                  | 2. 29. 23. 27,6                | 1. 28. 11. 51,6      | 14. 49. 39,0                  |
| 9      | 8       | 2. 7. 16. 31,8                 | 1. 9. 18. 46,5      | 13. 17. 30,5                  | 3. 12. 34. 2,6                 | 2. 11. 15. 45,6      | 14. 52. 49,7                  |
| 10     | 9       | 2. 20. 27. 6,8                 | 1. 22. 22. 40,5     | 13. 20. 41,1                  | 3. 25. 44. 37,6                | 2. 24. 19. 39,6      | 14. 56. 0,3                   |
| 11     | 10      | 3. 3. 37. 41,8                 | 2. 5. 26. 34,4      | 13. 23. 51,8                  | 4. 8. 55. 12,6                 | 3. 7. 23. 33,5       | 14. 59. 10,9                  |
| 12     | 11      | 3. 16. 48. 16,9                | 2. 18. 30. 28,4     | 13. 27. 2,4                   | 4. 22. 5. 47,7                 | 3. 20. 27. 27,5      | 15. 2. 21,6                   |
| 13     | 12      | 3. 29. 58. 51,9                | 3. 1. 34. 22,4      | 13. 30. 13,0                  | 5. 5. 16. 22,7                 | 4. 3. 31. 21,5       | 15. 5. 32,2                   |
| 14     | 13      | 4. 13. 9. 26,9                 | 3. 14. 38. 16,3     | 13. 33. 23,7                  | 5. 18. 26. 57,7                | 4. 16. 35. 15,4      | 15. 8. 42,9                   |
| 15     | 14      | 4. 26. 20. 1,9                 | 3. 27. 42. 10,3     | 13. 36. 34,3                  | 6. 1. 37. 32,7                 | 4. 29. 39. 9,4       | 15. 11. 53,5                  |
| 16     | 15      | 5. 9. 30. 37,0                 | 4. 10. 46. 4,3      | 13. 39. 44,9                  | 6. 14. 48. 7,8                 | 5. 12. 43. 3,4       | 15. 15. 4,1                   |
| 17     | 16      | 5. 22. 41. 12,0                | 4. 23. 49. 58,3     | 13. 42. 55,6                  | 6. 27. 58. 42,8                | 5. 25. 46. 57,4      | 15. 18. 14,8                  |
| 18     | 17      | 6. 5. 51. 47,0                 | 5. 6. 53. 52,2      | 13. 46. 6,2                   | 7. 11. 9. 17,8                 | 6. 8. 50. 51,3       | 15. 21. 25,4                  |
| 19     | 18      | 6. 19. 2. 22,0                 | 5. 19. 57. 46,2     | 13. 49. 16,9                  | 7. 24. 19. 52,9                | 6. 21. 54. 45,3      | 15. 24. 36,0                  |
| 20     | 19      | 7. 2. 12. 57,1                 | 6. 3. 1. 40,1       | 13. 52. 27,5                  | 8. 7. 30. 27,9                 | 7. 4. 58. 39,3       | 15. 27. 46,7                  |
| 21     | 20      | 7. 15. 23. 32,1                | 6. 16. 5. 34,1      | 13. 55. 38,1                  | 8. 20. 41. 2,9                 | 7. 18. 2. 33,2       | 15. 30. 57,3                  |
| 22     | 21      | 7. 28. 34. 7,1                 | 6. 29. 9. 28,2      | 13. 58. 48,8                  | 9. 3. 51. 37,9                 | 8. 1. 6. 27,2        | 15. 34. 8,0                   |
| 23     | 22      | 8. 11. 44. 42,2                | 7. 12. 13. 22,1     | 14. 1. 59,4                   | 9. 17. 2. 13,0                 | 8. 14. 10. 21,2      | 15. 37. 18,6                  |
| 24     | 23      | 8. 24. 55. 17,2                | 7. 25. 17. 16,0     | 14. 5. 10,1                   | 10. 0. 12. 48,0                | 8. 27. 14. 15,1      | 15. 40. 29,2                  |
| 25     | 24      | 9. 8. 5. 52,2                  | 8. 8. 21. 10,0      | 14. 8. 20,7                   | 10. 13. 23. 23,0               | 9. 10. 18. 9,1       | 15. 43. 39,9                  |
| 26     | 25      | 9. 21. 16. 27,2                | 8. 21. 25. 4,0      | 14. 11. 31,3                  | 10. 26. 33. 58,0               | 9. 23. 22. 3,1       | 15. 46. 50,5                  |
| 27     | 26      | 10. 4. 27. 2,3                 | 9. 4. 28. 58,0      | 14. 14. 42,0                  | 11. 9. 44. 33,1                | 10. 6. 25. 57,1      | 15. 50. 1,2                   |
| 28     | 27      | 10. 17. 37. 37,3               | 9. 17. 32. 51,9     | 14. 17. 52,6                  | 11. 22. 55. 8,1                | 10. 19. 29. 51,0     | 15. 53. 11,8                  |
| 29     | 28      | 11. 0. 48. 12,3                | 10. 0. 36. 45,9     | 14. 21. 3,3                   | 0. 6. 5. 43,1                  | 11. 2. 33. 45,0      | 15. 56. 22,4                  |
| 30     | 29      | 11. 13. 58. 47,3               | 10. 13. 40. 39,9    | 14. 24. 13,9                  | 0. 19. 16. 18,1                | 11. 15. 37. 39,0     | 15. 59. 33,1                  |
| 31     | 30      | 11. 27. 9. 22,4                | 10. 26. 44. 33,8    | 14. 27. 24,5                  | 1. 2. 26. 53,2                 | 11. 28. 41. 32,9     | 16. 2. 43,7                   |
|        | 31      | - - - -                        | - - - -             | - - - -                       | 1. 15. 37. 28,2                | 0. 11. 45. 26,9      | 16. 5. 54,3                   |



## Continuation of TABLE V.

Motions for Days.

| YEARS. |         | NOVEMBER.                      |                     |                               | DECEMBER.                      |                     |                               |
|--------|---------|--------------------------------|---------------------|-------------------------------|--------------------------------|---------------------|-------------------------------|
| Comm.  | Bissex. | Mean Longitude<br>of the Moon. | Mean Anomaly.       | Supplement<br>of<br>the Node. | Mean Longitude<br>of the Moon. | Mean Anomaly.       | Supplement<br>of<br>the Node. |
| 1      | 0       | 1°. 15°. 37'. 28",2            | 0°. 11°. 45'. 26",9 | 16°. 5'. 54",3                | 2°. 20°. 54'. 59",0            | 1°. 13°. 42'. 26",0 | 17°. 41'. 13",5               |
| 2      | 1       | 1. 28. 48. 3,2                 | 0. 24. 49. 20,9     | 16. 9. 5,0                    | 3. 4. 5. 34,0                  | 1. 26. 46. 20,0     | 17. 44. 24,2                  |
| 3      | 2       | 2. 11. 58. 38,2                | 1. 7. 53. 14,8      | 16. 12. 15,6                  | 3. 17. 16. 9,1                 | 2. 9. 50. 14,0      | 17. 47. 34,8                  |
| 4      | 3       | 2. 25. 9. 13,3                 | 1. 20. 57. 8,8      | 16. 15. 26,3                  | 4. 0. 26. 44,1                 | 2. 22. 54. 7,9      | 17. 50. 45,5                  |
| 5      | 4       | 3. 8. 19. 48,3                 | 2. 4. 1. 2,8        | 16. 18. 36,9                  | 4. 13. 37. 19,1                | 3. 5. 58. 1,9       | 17. 53. 56,1                  |
| 6      | 5       | 3. 21. 30. 23,3                | 2. 7. 4. 56,8       | 16. 21. 47,6                  | 4. 26. 47. 54,1                | 3. 19. 1. 55,9      | 17. 57. 6,7                   |
| 7      | 6       | 4. 4. 40. 58,3                 | 3. 0. 8. 50,7       | 16. 24. 58,2                  | 5. 9. 58. 29,2                 | 4. 2. 5. 49,8       | 18. 0. 17,4                   |
| 8      | 7       | 4. 17. 51. 33,4                | 3. 13. 12. 44,7     | 16. 28. 8,8                   | 5. 23. 9. 4,2                  | 4. 15. 9. 43,8      | 18. 3. 28,0                   |
| 9      | 8       | 5. 1. 2. 8,4                   | 3. 26. 16. 38,7     | 16. 31. 19,5                  | 6. 6. 19. 39,3                 | 4. 28. 13. 37,8     | 18. 6. 38,7                   |
| 10     | 9       | 5. 14. 12. 43,4                | 4. 9. 20. 32,6      | 16. 34. 30,1                  | 6. 19. 30. 14,3                | 5. 11. 17. 31,7     | 18. 9. 49,3                   |
| 11     | 10      | 5. 27. 23. 18,5                | 4. 22. 24. 26,6     | 16. 37. 40,7                  | 7. 2. 40. 49,3                 | 5. 24. 21. 25,7     | 18. 12. 59,9                  |
| 12     | 11      | 6. 10. 33. 53,5                | 5. 5. 28. 20,6      | 16. 40. 51,4                  | 7. 15. 51. 24,3                | 6. 7. 25. 19,7      | 18. 16. 10,6                  |
| 13     | 12      | 6. 23. 44. 28,5                | 5. 18. 32. 14,6     | 16. 44. 2,0                   | 7. 29. 1. 59,3                 | 6. 20. 29. 13,7     | 18. 19. 21,2                  |
| 14     | 13      | 7. 6. 55. 3,6                  | 6. 1. 36. 8,5       | 16. 47. 12,7                  | 8. 12. 12. 34,4                | 7. 3. 33. 7,6       | 18. 22. 31,8                  |
| 15     | 14      | 7. 20. 5. 38,6                 | 6. 14. 40. 2,5      | 16. 50. 23,3                  | 8. 25. 23. 9,4                 | 7. 16. 37. 1,6      | 18. 25. 42,5                  |
| 16     | 15      | 8. 3. 16. 13,6                 | 6. 27. 43. 56,5     | 16. 53. 33,9                  | 9. 8. 33. 44,4                 | 7. 29. 40. 55,6     | 18. 28. 53,1                  |
| 17     | 16      | 8. 16. 26. 48,6                | 7. 10. 47. 50,4     | 16. 56. 44,6                  | 9. 21. 44. 19,4                | 8. 12. 44. 49,5     | 18. 32. 3,8                   |
| 18     | 17      | 8. 29. 37. 23,6                | 7. 23. 51. 44,4     | 16. 59. 55,2                  | 10. 4. 54. 54,5                | 8. 25. 48. 43,5     | 18. 35. 14,4                  |
| 19     | 18      | 9. 12. 47. 58,7                | 8. 6. 55. 38,4      | 17. 3. 5,9                    | 10. 18. 5. 29,5                | 9. 8. 52. 37,5      | 18. 38. 25,0                  |
| 20     | 19      | 9. 25. 58. 33,7                | 8. 19. 59. 32,3     | 17. 6. 16,5                   | 11. 1. 16. 4,5                 | 9. 21. 56. 31,4     | 18. 41. 35,7                  |
| 21     | 20      | 10. 9. 9. 8,7                  | 9. 3. 3. 26,3       | 17. 9. 27,1                   | 11. 14. 26. 39,6               | 10. 5. 0. 25,4      | 18. 44. 46,3                  |
| 22     | 21      | 10. 22. 19. 43,8               | 9. 16. 7. 20,3      | 17. 12. 37,8                  | 11. 27. 37. 14,6               | 10. 18. 4. 19,4     | 18. 47. 57,0                  |
| 23     | 22      | 11. 5. 30. 18,8                | 9. 29. 11. 14,3     | 17. 15. 48,4                  | 0. 10. 47. 49,7                | 11. 1. 8. 13,4      | 18. 51. 7,6                   |
| 24     | 23      | 11. 18. 40. 53,8               | 10. 12. 15. 8,2     | 17. 18. 59,1                  | 0. 23. 58. 24,6                | 11. 14. 12. 7,3     | 18. 54. 18,2                  |
| 25     | 24      | 0. 1. 51. 28,8                 | 10. 25. 19. 2,2     | 17. 22. 9,7                   | 1. 7. 8. 59,6                  | 11. 27. 16. 1,3     | 18. 57. 28,9                  |
| 26     | 25      | 0. 15. 2. 3,9                  | 11. 8. 22. 56,2     | 17. 25. 20,3                  | 1. 20. 19. 34,7                | 0. 10. 19. 55,3     | 19. 0. 39,5                   |
| 27     | 26      | 0. 28. 12. 38,9                | 11. 21. 26. 50,1    | 17. 28. 31,0                  | 2. 3. 30. 9,7                  | 0. 23. 23. 49,2     | 19. 3. 50,2                   |
| 28     | 27      | 1. 11. 23. 13,9                | 0. 4. 30. 44,1      | 17. 31. 41,6                  | 2. 16. 40. 44,7                | 1. 6. 27. 43,2      | 19. 7. 0,8                    |
| 29     | 28      | 1. 24. 33. 49,0                | 0. 17. 34. 38,1     | 17. 34. 52,3                  | 2. 29. 51. 19,8                | 1. 19. 31. 37,2     | 19. 10. 11,4                  |
| 30     | 29      | 2. 7. 44. 24,0                 | 1. 0. 38. 32,0      | 17. 38. 2,9                   | 3. 13. 1. 54,8                 | 2. 2. 35. 31,1      | 19. 13. 22,1                  |
| 31     | 30      | 2. 20. 54. 59,0                | 1. 13. 42. 26,0     | 17. 41. 13,5                  | 3. 26. 12. 29,8                | 2. 15. 39. 25,1     | 19. 16. 32,7                  |
|        | 31      | - - - - -                      | - - - - -           | - - - - -                     | 4. 9. 23. 4,9                  | 2. 28. 43. 19,1     | 19. 19. 43,4                  |



TABLE VI.

Mean Motion for Hours, Minutes, and Seconds.

| FOR HOURS. |                            |                  |                           | FOR MINUTES AND SECONDS. |                               |                  |                           |    |                               |                  |                           |
|------------|----------------------------|------------------|---------------------------|--------------------------|-------------------------------|------------------|---------------------------|----|-------------------------------|------------------|---------------------------|
| H.         | Mean Long.<br>of the Moon. | Mean<br>Anomaly. | Suppl.<br>of<br>the Node. |                          | Mean<br>Long. of<br>the Moon. | Mean<br>Anomaly. | Suppl.<br>of the<br>Node. |    | Mean<br>Long. of<br>the Moon. | Mean<br>Anomaly. | Suppl.<br>of the<br>Node. |
| 1          | 0°. 32'. 56",5             | 0°. 32'. 39",7   | 0'. 7",9                  | M.                       | " "                           | " "              | "                         | M. | " "                           | " "              | "                         |
| 2          | 1. 5. 52,9                 | 1. 5. 19,5       | 0. 15,9                   | S.                       | " "                           | " "              | "                         | S. | " "                           | " "              | "                         |
| 3          | 1. 38. 49,4                | 1. 37. 59,2      | 0. 23,8                   |                          |                               |                  |                           |    |                               |                  |                           |
| 4          | 2. 11. 45,8                | 2. 10. 39,0      | 0. 31,8                   | 1                        | 0. 32",9                      | 0. 32",7         | 0,1                       | 31 | 17. 1",2                      | 16. 52",5        | 4,1                       |
| 5          | 2. 44. 42,3                | 2. 43. 18,7      | 0. 39,7                   | 2                        | 1. 5,9                        | 1. 5,3           | 0,3                       | 32 | 17. 34,1                      | 17. 25,2         | 4,2                       |
| 6          | 3. 17. 38,8                | 3. 15. 58,5      | 0. 47,7                   | 3                        | 1. 38,8                       | 1. 38,0          | 0,4                       | 33 | 18. 7,1                       | 17. 57,9         | 4,4                       |
| 7          | 3. 50. 35,2                | 3. 48. 38,2      | 0. 55,6                   | 4                        | 2. 11,8                       | 2. 10,6          | 0,5                       | 34 | 18. 40,0                      | 18. 30,5         | 4,5                       |
| 8          | 4. 23. 31,7                | 4. 21. 18,0      | 1. 3,6                    | 5                        | 2. 44,7                       | 2. 43,3          | 0,7                       | 35 | 19. 12,9                      | 19. 3,2          | 4,7                       |
| 9          | 4. 56. 28,1                | 4. 53. 57,7      | 1. 11,5                   | 6                        | 3. 17,6                       | 3. 16,0          | 0,8                       | 36 | 19. 45,9                      | 19. 35,8         | 4,8                       |
| 10         | 5. 29. 24,6                | 5. 26. 37,5      | 1. 19,4                   | 7                        | 3. 50,6                       | 3. 48,6          | 0,9                       | 37 | 20. 18,8                      | 20. 8,5          | 4,9                       |
| 11         | 6. 2. 21,1                 | 5. 59. 17,2      | 1. 27,4                   | 8                        | 4. 23,5                       | 4. 21,3          | 1,1                       | 38 | 20. 51,8                      | 20. 41,2         | 5,0                       |
| 12         | 6. 35. 17,5                | 6. 31. 57,0      | 1. 35,3                   | 9                        | 4. 56,5                       | 4. 54,0          | 1,2                       | 39 | 21. 24,7                      | 21. 13,8         | 5,2                       |
| 13         | 7. 8. 14,0                 | 7. 4. 36,7       | 1. 43,3                   | 10                       | 5. 29,4                       | 5. 26,6          | 1,3                       | 40 | 21. 57,6                      | 21. 46,5         | 5,3                       |
| 14         | 7. 41. 10,4                | 7. 37. 16,5      | 1. 51,2                   | 11                       | 6. 2,4                        | 5. 59,3          | 1,5                       | 41 | 22. 30,6                      | 22. 19,2         | 5,4                       |
| 15         | 8. 14. 6,9                 | 8. 9. 56,2       | 1. 59,2                   | 12                       | 6. 35,3                       | 6. 31,9          | 1,6                       | 42 | 23. 3,5                       | 22. 51,8         | 5,6                       |
| 16         | 8. 47. 3,4                 | 8. 42. 36,0      | 2. 7,1                    | 13                       | 7. 8,2                        | 7. 4,6           | 1,7                       | 43 | 23. 36,5                      | 23. 24,5         | 5,7                       |
| 17         | 9. 19. 59,8                | 9. 15. 15,7      | 2. 15,0                   | 14                       | 7. 41,2                       | 7. 37,3          | 1,9                       | 44 | 24. 9,4                       | 23. 57,1         | 5,8                       |
| 18         | 9. 52. 56,3                | 9. 47. 55,5      | 2. 23,0                   | 15                       | 8. 14,1                       | 8. 9,9           | 2,0                       | 45 | 24. 42,3                      | 24. 29,8         | 6,0                       |
| 19         | 10. 25. 52,7               | 10. 20. 35,2     | 2. 30,9                   | 16                       | 8. 47,1                       | 8. 42,6          | 2,1                       | 46 | 25. 15,3                      | 25. 2,5          | 6,1                       |
| 20         | 10. 58. 49,2               | 10. 53. 15,0     | 2. 38,9                   | 17                       | 9. 20,0                       | 9. 15,3          | 2,3                       | 47 | 25. 48,2                      | 25. 35,1         | 6,2                       |
| 21         | 11. 31. 45,6               | 11. 25. 54,7     | 2. 46,8                   | 18                       | 9. 52,9                       | 9. 47,9          | 2,4                       | 48 | 26. 21,2                      | 26. 7,8          | 6,4                       |
| 22         | 12. 4. 42,1                | 11. 58. 34,5     | 2. 54,8                   | 19                       | 10. 25,9                      | 10. 20,6         | 2,5                       | 49 | 26. 54,1                      | 26. 40,5         | 6,5                       |
| 23         | 12. 37. 38,6               | 12. 31. 14,2     | 3. 2,7                    | 20                       | 10. 58,8                      | 10. 53,2         | 2,6                       | 50 | 27. 27,0                      | 27. 13,1         | 6,6                       |
| 24         | 13. 10. 35,0               | 13. 3. 54,0      | 3. 10,6                   | 21                       | 11. 31,8                      | 11. 25,9         | 2,8                       | 51 | 28. 0,0                       | 27. 45,8         | 6,8                       |
| 25         | 13. 43. 31,5               | 13. 36. 33,7     | 3. 18,6                   | 22                       | 12. 4,7                       | 11. 58,6         | 2,9                       | 52 | 28. 32,9                      | 28. 18,5         | 6,9                       |
| 26         | 14. 16. 27,9               | 14. 9. 13,5      | 3. 26,5                   | 23                       | 12. 37,6                      | 12. 31,2         | 3,0                       | 53 | 29. 5,9                       | 28. 51,1         | 7,0                       |
| 27         | 14. 49. 24,4               | 14. 41. 53,2     | 3. 34,5                   | 24                       | 13. 10,6                      | 13. 3,9          | 3,2                       | 54 | 29. 38,8                      | 29. 23,8         | 7,1                       |
| 28         | 15. 22. 20,9               | 15. 14. 33,0     | 3. 42,4                   | 25                       | 13. 43,5                      | 13. 36,6         | 3,3                       | 55 | 30. 11,8                      | 29. 56,4         | 7,3                       |
| 29         | 15. 55. 17,3               | 15. 47. 12,7     | 3. 50,4                   | 26                       | 14. 16,5                      | 14. 9,2          | 3,4                       | 56 | 30. 44,7                      | 30. 29,1         | 7,4                       |
| 30         | 16. 28. 13,8               | 16. 19. 52,4     | 3. 58,3                   | 27                       | 14. 49,4                      | 14. 41,9         | 3,6                       | 57 | 31. 17,6                      | 31. 1,8          | 7,5                       |
|            |                            |                  |                           | 28                       | 15. 22,3                      | 15. 14,5         | 3,7                       | 58 | 31. 50,6                      | 31. 34,4         | 7,7                       |
|            |                            |                  |                           | 29                       | 15. 55,3                      | 15. 47,2         | 3,8                       | 59 | 32. 23,5                      | 32. 7,1          | 7,8                       |
|            |                            |                  |                           | 30                       | 16. 28,2                      | 16. 19,9         | 4,0                       | 60 | 32. 56,5                      | 32. 39,8         | 7,9                       |



## Equations of the Moon in Longitude.

TABLE VII.

Equation I. Argument I. or Sun's Mean Anomaly.

|    | Sig. O.   | Diff. | Sig. I.   | Diff. | Sig. II.  | Diff. | Sig. III. | Diff. | Sig. IV.  | Diff. | Sig. V.   | Diff. |
|----|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 0° | 12'. 0",0 | 11",9 | 6'. 18",9 | 10",2 | 2'. 13",0 | 5",7  | 0'. 48",2 | 0",3  | 2'. 23",4 | 6",1  | 6'. 29",3 | 10",1 |
| 1  | 11. 48,1  | 12,0  | 6. 8,7    | 10,1  | 2. 7,3    | 5,5   | 0. 48,5   | 0,5   | 2. 29,5   | 6,2   | 6. 39,4   | 10,2  |
| 2  | 11. 36,1  | 11,9  | 5. 58,6   | 10,0  | 2. 1,8    | 5,3   | 0. 49,0   | 0,8   | 2. 35,7   | 6,4   | 6. 49,6   | 10,3  |
| 3  | 11. 24,2  | 11,9  | 5. 48,6   | 9,9   | 1. 56,5   | 5,1   | 0. 49,8   | 0,9   | 2. 42,1   | 6,5   | 6. 59,9   | 10,4  |
| 4  | 11. 12,3  | 11,9  | 5. 38,7   | 9,7   | 1. 51,4   | 4,9   | 0. 50,7   | 1,1   | 2. 48,6   | 6,7   | 7. 10,3   | 10,4  |
| 5  | 11. 0,4   | 11,9  | 5. 29,0   | 9,6   | 1. 46,5   | 4,8   | 0. 51,8   | 1,3   | 2. 55,3   | 6,9   | 7. 20,7   | 10,5  |
| 6  | 10. 48,5  | 11,9  | 5. 19,4   | 9,5   | 1. 41,7   | 4,5   | 0. 53,1   | 1,6   | 3. 2,2    | 7,0   | 7. 31,2   | 10,6  |
| 7  | 10. 36,6  | 11,7  | 5. 9,9    | 9,3   | 1. 37,2   | 4,3   | 0. 54,7   | 1,7   | 3. 9,2    | 7,2   | 7. 41,8   | 10,7  |
| 8  | 10. 24,9  | 11,8  | 5. 0,6    | 9,2   | 1. 32,9   | 4,1   | 0. 56,4   | 2,0   | 3. 16,4   | 7,4   | 7. 52,5   | 10,8  |
| 9  | 10. 13,1  | 11,8  | 4. 51,4   | 9,1   | 1. 28,8   | 3,9   | 0. 58,4   | 2,1   | 3. 23,8   | 7,5   | 8. 3,3    | 10,8  |
| 10 | 10. 1,3   | 11,7  | 4. 42,3   | 8,9   | 1. 24,9   | 3,7   | 1. 0,5    | 2,3   | 3. 31,3   | 7,7   | 8. 14,1   | 10,9  |
| 11 | 9. 49,6   | 11,7  | 4. 33,4   | 8,8   | 1. 21,2   | 3,6   | 1. 2,8    | 2,6   | 3. 39,0   | 7,7   | 8. 25,0   | 10,9  |
| 12 | 9. 37,9   | 11,7  | 4. 24,6   | 8,7   | 1. 17,6   | 3,3   | 1. 5,4    | 2,7   | 3. 46,7   | 8,0   | 8. 35,9   | 11,0  |
| 13 | 9. 26,2   | 11,6  | 4. 15,9   | 8,6   | 1. 14,3   | 3,2   | 1. 8,1    | 2,9   | 3. 54,7   | 8,0   | 8. 46,9   | 11,1  |
| 14 | 9. 14,6   | 11,5  | 4. 7,3    | 8,4   | 1. 11,1   | 3,0   | 1. 11,0   | 3,1   | 4. 2,7    | 8,2   | 8. 58,0   | 11,1  |
| 15 | 9. 3,1    | 11,5  | 3. 58,9   | 8,2   | 1. 08,1   | 2,8   | 1. 14,1   | 3,3   | 4. 10,9   | 8,4   | 9. 9,1    | 11,2  |
| 16 | 8. 51,6   | 11,4  | 3. 50,7   | 8,1   | 1. 5,3    | 2,5   | 1. 17,4   | 3,5   | 4. 19,3   | 8,5   | 9. 20,3   | 11,2  |
| 17 | 8. 40,2   | 11,3  | 3. 42,6   | 7,9   | 1. 2,8    | 2,4   | 1. 20,9   | 3,7   | 4. 27,8   | 8,6   | 9. 31,5   | 11,3  |
| 18 | 8. 28,9   | 11,3  | 3. 34,7   | 7,7   | 1. 0,4    | 2,1   | 1. 24,6   | 3,9   | 4. 36,4   | 8,8   | 9. 42,8   | 11,3  |
| 19 | 8. 17,6   | 11,2  | 3. 27,0   | 7,5   | 0. 58,3   | 1,9   | 1. 28,5   | 4,1   | 4. 45,2   | 8,9   | 9. 54,1   | 11,3  |
| 20 | 8. 06,4   | 11,1  | 3. 19,5   | 7,4   | 0. 56,4   | 1,7   | 1. 32,6   | 4,3   | 4. 54,1   | 9,1   | 10. 5,4   | 11,4  |
| 21 | 7. 55,3   | 11,1  | 3. 12,1   | 7,2   | 0. 54,7   | 1,6   | 1. 36,9   | 4,4   | 5. 3,2    | 9,1   | 10. 16,8  | 11,4  |
| 22 | 7. 44,2   | 11,0  | 3. 4,9    | 7,1   | 0. 53,1   | 1,3   | 1. 41,3   | 4,6   | 5. 12,3   | 9,2   | 10. 28,2  | 11,4  |
| 23 | 7. 33,2   | 10,9  | 2. 57,8   | 6,9   | 0. 51,8   | 1,2   | 1. 45,9   | 4,8   | 5. 21,5   | 9,3   | 10. 39,6  | 11,4  |
| 24 | 7. 22,3   | 10,8  | 2. 50,9   | 6,8   | 0. 50,6   | 0,9   | 1. 50,7   | 5,0   | 5. 30,8   | 9,5   | 10. 51,0  | 11,5  |
| 25 | 7. 11,5   | 10,7  | 2. 44,1   | 6,6   | 0. 49,7   | 0,8   | 1. 55,7   | 5,2   | 5. 40,3   | 9,6   | 11. 2,5   | 11,5  |
| 26 | 7. 0,8    | 10,6  | 2. 37,5   | 6,4   | 0. 48,9   | 0,5   | 2. 0,9    | 5,3   | 5. 49,9   | 9,7   | 11. 14,0  | 11,5  |
| 27 | 6. 50,2   | 10,6  | 2. 31,1   | 6,2   | 0. 48,4   | 0,2   | 2. 6,2    | 5,6   | 5. 59,6   | 9,8   | 11. 25,5  | 11,5  |
| 28 | 6. 39,6   | 10,4  | 2. 24,9   | 6,0   | 0. 48,2   | 0,1   | 2. 11,8   | 5,7   | 6. 9,4    | 9,9   | 11. 37,0  | 11,5  |
| 29 | 6. 29,2   | 10,3  | 2. 18,9   | 5,9   | 0. 48,1   | 0,1   | 2. 17,5   | 5,9   | 6. 19,3   | 10,0  | 11. 48,5  | 11,5  |
| 30 | 6. 18,9   |       | 2. 13,0   |       | 0. 48,2   |       | 2. 23,4   |       | 6. 29,3   |       | 12. 0,0   |       |



## Equations of the Moon in Longitude.

## Continuation of TABLE VII.

## Equation I. Argument I. or Sun's Mean Anomaly.

|    | Sig. VI. | Diff. | Sig. VII. | Diff. | Sig. VIII. | Diff. | Sig. IX.  | Diff. | Sig. X.   | Diff. | Sig. XI.  | Diff. |
|----|----------|-------|-----------|-------|------------|-------|-----------|-------|-----------|-------|-----------|-------|
| c° | 12. 0",0 | 11",5 | 17. 30",7 | 10",0 | 21. 36",6  | 5",9  | 23. 11",8 | 0",1  | 21. 47",0 | 5",9  | 17. 41",1 | 10",3 |
| 1  | 12. 11,5 | 11,5  | 17. 40,7  | 9,9   | 21. 42,5   | 5,7   | 23. 11,9  | 0,1   | 21. 41,1  | 6,0   | 17. 30,8  | 10,4  |
| 2  | 12. 23,0 | 11,5  | 17. 50,6  | 9,8   | 21. 48,2   | 5,6   | 23. 11,8  | 0,2   | 21. 35,1  | 6,2   | 17. 20,4  | 10,6  |
| 3  | 12. 34,5 | 11,5  | 18. 0,4   | 9,7   | 21. 53,8   | 5,3   | 23. 11,6  | 0,5   | 21. 28,9  | 6,4   | 17. 9,8   | 10,6  |
| 4  | 12. 46,0 | 11,5  | 18. 10,1  | 9,6   | 21. 59,1   | 5,2   | 23. 11,1  | 0,8   | 21. 22,5  | 6,6   | 16. 59,2  | 10,7  |
| 5  | 12. 57,5 | 11,5  | 18. 19,7  | 9,5   | 22. 4,3    | 5,0   | 23. 10,3  | 0,9   | 21. 15,9  | 6,8   | 16. 48,5  | 10,8  |
| 6  | 13. 9,0  | 11,4  | 18. 29,2  | 9,3   | 22. 9,3    | 4,8   | 23. 9,4   | 1,2   | 21. 9,1   | 6,9   | 16. 37,7  | 10,9  |
| 7  | 13. 20,4 | 11,4  | 18. 38,5  | 9,2   | 22. 14,1   | 4,6   | 23. 8,2   | 1,3   | 21. 2,2   | 7,1   | 16. 26,8  | 11,0  |
| 8  | 13. 31,8 | 11,4  | 18. 47,7  | 9,1   | 22. 18,7   | 4,4   | 23. 6,9   | 1,6   | 20. 55,1  | 7,2   | 16. 15,8  | 11,1  |
| 9  | 13. 43,2 | 11,4  | 18. 56,8  | 9,1   | 22. 23,1   | 4,3   | 23. 5,3   | 1,7   | 20. 47,9  | 7,4   | 16. 4,7   | 11,1  |
| 10 | 13. 54,6 | 11,3  | 19. 5,9   | 8,9   | 22. 27,4   | 4,1   | 23. 3,6   | 1,9   | 20. 40,5  | 7,5   | 15. 53,6  | 11,2  |
| 11 | 14. 5,9  | 11,3  | 19. 14,8  | 8,8   | 22. 31,5   | 3,9   | 23. 1,7   | 2,1   | 20. 33,0  | 7,7   | 15. 42,4  | 11,3  |
| 12 | 14. 17,2 | 11,3  | 19. 23,6  | 8,6   | 22. 35,4   | 3,7   | 22. 59,6  | 2,4   | 20. 25,3  | 7,9   | 15. 31,1  | 11,3  |
| 13 | 14. 28,5 | 11,2  | 19. 32,2  | 8,5   | 22. 39,1   | 3,5   | 22. 57,2  | 2,5   | 20. 17,4  | 8,1   | 15. 19,8  | 11,4  |
| 14 | 14. 39,7 | 11,2  | 19. 40,7  | 8,4   | 22. 42,6   | 3,3   | 22. 54,7  | 2,8   | 20. 9,3   | 8,2   | 15. 8,4   | 11,5  |
| 15 | 14. 50,9 | 11,1  | 19. 49,1  | 8,2   | 22. 45,9   | 3,1   | 22. 51,9  | 3,0   | 20. 1,1   | 8,4   | 14. 56,9  | 11,5  |
| 16 | 15. 2,0  | 11,1  | 19. 57,3  | 8,0   | 22. 49,0   | 2,9   | 22. 48,9  | 3,2   | 19. 52,7  | 8,6   | 14. 45,4  | 11,6  |
| 17 | 15. 13,1 | 11,0  | 20. 5,3   | 8,0   | 22. 51,9   | 2,7   | 22. 45,7  | 3,2   | 19. 44,1  | 8,7   | 14. 33,8  | 11,7  |
| 18 | 15. 24,1 | 10,9  | 20. 13,3  | 7,7   | 22. 54,6   | 2,6   | 22. 42,4  | 3,3   | 19. 35,4  | 8,8   | 14. 22,1  | 11,7  |
| 19 | 15. 35,0 | 10,9  | 20. 21,0  | 7,7   | 22. 57,2   | 2,3   | 22. 38,8  | 3,6   | 19. 26,6  | 8,9   | 14. 10,4  | 11,7  |
| 20 | 15. 45,9 | 10,8  | 20. 28,7  | 7,5   | 22. 59,5   | 2,1   | 22. 35,1  | 3,7   | 19. 17,7  | 9,1   | 13. 58,7  | 11,8  |
| 21 | 15. 56,7 | 10,8  | 20. 36,2  | 7,4   | 23. 1,6    | 2,0   | 22. 31,2  | 4,1   | 19. 8,6   | 9,2   | 13. 46,9  | 11,8  |
| 22 | 16. 7,5  | 10,7  | 20. 43,6  | 7,2   | 23. 3,6    | 1,7   | 22. 27,1  | 4,3   | 18. 59,4  | 9,3   | 13. 35,1  | 11,8  |
| 23 | 16. 18,2 | 10,6  | 20. 50,8  | 7,0   | 23. 5,3    | 1,6   | 22. 22,8  | 4,5   | 18. 50,1  | 9,5   | 13. 23,3  | 11,8  |
| 24 | 16. 28,8 | 10,5  | 20. 57,8  | 6,9   | 23. 6,9    | 1,3   | 22. 18,3  | 4,8   | 18. 40,6  | 9,6   | 13. 11,5  | 11,9  |
| 25 | 16. 39,3 | 10,5  | 21. 4,7   | 6,7   | 23. 8,2    | 1,1   | 22. 13,5  | 4,9   | 18. 31,0  | 9,7   | 12. 59,6  | 11,9  |
| 26 | 16. 49,8 | 10,3  | 21. 11,4  | 6,5   | 23. 9,3    | 0,9   | 22. 8,6   | 5,1   | 18. 21,3  | 9,9   | 12. 47,7  | 11,9  |
| 27 | 17. 0,1  | 10,3  | 21. 17,9  | 6,4   | 23. 10,2   | 0,8   | 22. 3,5   | 5,3   | 18. 11,4  | 10,0  | 12. 35,8  | 11,9  |
| 28 | 17. 10,4 | 10,2  | 21. 24,3  | 6,2   | 23. 11,0   | 0,5   | 21. 58,2  | 5,5   | 18. 1,4   | 10,1  | 12. 23,9  | 12,0  |
| 29 | 17. 20,6 | 10,1  | 21. 30,5  | 6,1   | 23. 11,5   | 0,3   | 21. 52,7  | 5,7   | 17. 51,3  | 10,2  | 12. 11,9  | 11,9  |
| 30 | 17. 30,7 |       | 21. 36,6  |       | 23. 11,8   |       | 21. 47,0  |       | 17. 41,1  |       | 12. 0,0   |       |



TABLE VIII.

Equation II. Argument II.

ARG. II. = ( $\odot - \odot$ ) + Arg. I.

|      | IX   | X    | XI   | O    | I    | II   |     |
|------|------|------|------|------|------|------|-----|
| 0°   | 8,5  | 10,0 | 14,3 | 20,0 | 25,7 | 30,0 | 30° |
| 1    | 8,5  | 10,1 | 14,4 | 20,2 | 25,9 | 30,1 | 29  |
| 2    | 8,5  | 10,3 | 14,6 | 20,4 | 26,1 | 30,1 | 28  |
| 3    | 8,5  | 10,4 | 14,8 | 20,6 | 26,3 | 30,2 | 27  |
| 4    | 8,5  | 10,5 | 15,0 | 20,8 | 26,5 | 30,3 | 26  |
| 5    | 8,5  | 10,6 | 15,2 | 21,0 | 26,6 | 30,4 | 25  |
| 6    | 8,6  | 10,7 | 15,3 | 21,2 | 26,8 | 30,5 | 24  |
| 7    | 8,6  | 10,8 | 15,5 | 21,4 | 26,9 | 30,6 | 23  |
| 8    | 8,6  | 10,9 | 15,7 | 21,6 | 27,1 | 30,7 | 22  |
| 9    | 8,7  | 11,1 | 15,9 | 21,8 | 27,2 | 30,7 | 21  |
| 10   | 8,7  | 11,2 | 16,1 | 22,0 | 27,4 | 30,8 | 20  |
| 11   | 8,7  | 11,3 | 16,3 | 22,2 | 27,5 | 30,9 | 19  |
| 12   | 8,8  | 11,5 | 16,4 | 22,4 | 27,7 | 30,9 | 18  |
| 13   | 8,8  | 11,6 | 16,6 | 22,6 | 27,8 | 31,0 | 17  |
| 14   | 8,8  | 11,7 | 16,8 | 22,8 | 28,0 | 31,0 | 16  |
| 15   | 8,9  | 11,9 | 17,0 | 23,0 | 28,1 | 31,1 | 15  |
| 16   | 8,9  | 12,0 | 17,2 | 23,2 | 28,3 | 31,2 | 14  |
| 17   | 9,0  | 12,2 | 17,4 | 23,4 | 28,4 | 31,2 | 13  |
| 18   | 9,1  | 12,3 | 17,6 | 23,6 | 28,5 | 31,2 | 12  |
| 19   | 9,1  | 12,5 | 17,8 | 23,7 | 28,7 | 31,3 | 11  |
| 20   | 9,2  | 12,6 | 18,0 | 23,9 | 28,8 | 31,3 | 10  |
| 21   | 9,3  | 12,8 | 18,2 | 24,1 | 28,9 | 31,3 | 9   |
| 22   | 9,3  | 12,9 | 18,4 | 24,3 | 29,1 | 31,4 | 8   |
| 23   | 9,4  | 13,1 | 18,6 | 24,5 | 29,2 | 31,4 | 7   |
| 24   | 9,5  | 13,2 | 18,8 | 24,7 | 29,3 | 31,4 | 6   |
| 25   | 9,6  | 13,4 | 19,0 | 24,8 | 29,4 | 31,5 | 5   |
| 26   | 9,7  | 13,5 | 19,2 | 25,0 | 29,5 | 31,5 | 4   |
| 27   | 9,8  | 13,7 | 19,4 | 25,2 | 29,6 | 31,5 | 3   |
| 28   | 9,9  | 13,9 | 19,6 | 25,4 | 29,7 | 31,5 | 2   |
| 29   | 9,9  | 14,1 | 19,8 | 25,6 | 29,9 | 31,5 | 1   |
| 30   | 10,0 | 14,3 | 20,0 | 25,7 | 30,0 | 31,5 | 0   |
| VIII | VII  | VI   | V    | IV   | III  |      |     |

TABLE IX.

Equation III. Arg. III.

ARG. III. = ( $\odot - \odot$ ) - Arg. I.

|    | O    | I    | II   | III  | IV   | V    | VI   | VII  | VIII | IX   | X    | XI   |
|----|------|------|------|------|------|------|------|------|------|------|------|------|
| 0° | 20,0 | 24,7 | 26,5 | 24,9 | 22,0 | 20,2 | 20,0 | 19,8 | 18,0 | 15,1 | 13,5 | 15,3 |
| 1  | 20,2 | 24,8 | 26,5 | 24,8 | 21,9 | 20,2 | 20,0 | 19,8 | 17,9 | 15,0 | 13,5 | 15,4 |
| 2  | 20,3 | 24,9 | 26,5 | 24,7 | 21,8 | 20,1 | 20,0 | 19,7 | 17,8 | 14,9 | 13,5 | 15,6 |
| 3  | 20,5 | 25,0 | 26,4 | 24,6 | 21,7 | 20,1 | 20,0 | 19,7 | 17,7 | 14,8 | 13,5 | 15,7 |
| 4  | 20,7 | 25,1 | 26,4 | 24,5 | 21,7 | 20,1 | 20,0 | 19,7 | 17,7 | 14,8 | 13,5 | 15,8 |
| 5  | 20,9 | 25,2 | 26,4 | 24,4 | 21,6 | 20,1 | 20,0 | 19,6 | 17,6 | 14,7 | 13,6 | 15,9 |
| 6  | 21,0 | 25,3 | 26,4 | 24,3 | 21,5 | 20,1 | 20,0 | 19,6 | 17,5 | 14,6 | 13,6 | 16,1 |
| 7  | 21,2 | 25,4 | 26,4 | 24,2 | 21,4 | 20,1 | 20,0 | 19,6 | 17,4 | 14,5 | 13,6 | 16,2 |
| 8  | 21,4 | 25,5 | 26,3 | 24,1 | 21,3 | 20,0 | 20,0 | 19,5 | 17,3 | 14,4 | 13,6 | 16,4 |
| 9  | 21,6 | 25,6 | 26,3 | 24,0 | 21,3 | 20,0 | 20,0 | 19,5 | 17,2 | 14,4 | 13,7 | 16,5 |
| 10 | 21,7 | 25,7 | 26,3 | 23,9 | 21,2 | 20,0 | 20,0 | 19,5 | 17,1 | 14,3 | 13,7 | 16,7 |
| 11 | 21,9 | 25,8 | 26,2 | 23,8 | 21,1 | 20,0 | 20,0 | 19,4 | 17,0 | 14,2 | 13,7 | 16,8 |
| 12 | 22,1 | 25,9 | 26,2 | 23,7 | 21,1 | 20,0 | 20,0 | 19,3 | 16,9 | 14,2 | 13,8 | 17,0 |
| 13 | 22,2 | 25,9 | 26,1 | 23,6 | 21,0 | 20,0 | 20,0 | 19,3 | 16,8 | 14,1 | 13,8 | 17,1 |
| 14 | 22,4 | 26,0 | 26,1 | 23,5 | 20,9 | 20,0 | 20,0 | 19,2 | 16,7 | 14,0 | 13,9 | 17,3 |
| 15 | 22,6 | 26,1 | 26,0 | 23,4 | 20,9 | 20,0 | 20,0 | 19,1 | 16,6 | 14,0 | 13,9 | 17,4 |
| 16 | 22,7 | 26,1 | 26,0 | 23,3 | 20,8 | 20,0 | 20,0 | 19,1 | 16,5 | 13,9 | 14,0 | 17,6 |
| 17 | 22,9 | 26,1 | 25,9 | 23,2 | 20,7 | 20,0 | 20,0 | 19,0 | 16,4 | 13,9 | 14,1 | 17,8 |
| 18 | 23,0 | 26,2 | 25,8 | 23,1 | 20,7 | 20,0 | 20,0 | 18,9 | 16,3 | 13,8 | 14,1 | 17,9 |
| 19 | 23,2 | 26,3 | 25,8 | 23,0 | 20,6 | 20,0 | 20,0 | 18,9 | 16,2 | 13,8 | 14,2 | 18,1 |
| 20 | 23,3 | 26,3 | 25,7 | 22,9 | 20,5 | 20,0 | 20,0 | 18,8 | 16,1 | 13,7 | 14,3 | 18,3 |
| 21 | 23,5 | 26,3 | 25,6 | 22,8 | 20,5 | 20,0 | 20,0 | 18,7 | 16,0 | 13,7 | 14,4 | 18,4 |
| 22 | 23,6 | 26,4 | 25,6 | 22,7 | 20,5 | 20,0 | 20,0 | 18,7 | 15,9 | 13,7 | 14,5 | 18,6 |
| 23 | 23,8 | 26,4 | 25,5 | 22,6 | 20,4 | 20,0 | 19,9 | 18,6 | 15,8 | 13,6 | 14,6 | 18,8 |
| 24 | 23,9 | 26,4 | 25,4 | 22,5 | 20,4 | 20,0 | 19,9 | 18,5 | 15,7 | 13,6 | 14,7 | 19,0 |
| 25 | 24,1 | 26,4 | 25,3 | 22,4 | 20,4 | 20,0 | 19,9 | 18,4 | 15,6 | 13,6 | 14,8 | 19,1 |
| 26 | 24,2 | 26,5 | 25,2 | 22,3 | 20,3 | 20,0 | 19,9 | 18,3 | 15,5 | 13,6 | 14,9 | 19,3 |
| 27 | 24,3 | 26,5 | 25,2 | 22,3 | 20,3 | 20,0 | 19,9 | 18,3 | 15,4 | 13,6 | 15,0 | 19,5 |
| 28 | 24,4 | 26,5 | 25,1 | 22,2 | 20,3 | 20,0 | 19,9 | 18,2 | 15,3 | 13,5 | 15,1 | 19,7 |
| 29 | 24,6 | 26,5 | 25,0 | 22,1 | 20,2 | 20,0 | 19,8 | 18,1 | 15,2 | 13,5 | 15,2 | 19,8 |
| 30 | 24,7 | 26,5 | 24,9 | 22,0 | 20,2 | 20,0 | 19,8 | 18,0 | 15,1 | 13,5 | 15,3 | 20,0 |

| Hours. | Days. | Hours. | Days. |
|--------|-------|--------|-------|
| 1      | 0,04  | 13     | 0,54  |
| 2      | 0,08  | 14     | 0,58  |
| 3      | 0,12  | 15     | 0,63  |
| 4      | 0,17  | 16     | 0,67  |
| 5      | 0,21  | 17     | 0,71  |
| 6      | 0,25  | 18     | 0,75  |
| 7      | 0,29  | 19     | 0,79  |
| 8      | 0,33  | 20     | 0,83  |
| 9      | 0,38  | 21     | 0,88  |
| 10     | 0,42  | 22     | 0,92  |
| 11     | 0,46  | 23     | 0,96  |
| 12     | 0,50  | 24     | 1,00  |



TABLE X.

Equation IV. Argument IV.

ARGUMENT IV. =  $(\zeta - \odot) + \text{Mean Anomaly } \zeta = (\zeta - \odot) + A.$ 

|    | O <sup>s</sup> . | I <sup>s</sup> . | II <sup>s</sup> . | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . | IX <sup>s</sup> . | X <sup>s</sup> . | XI <sup>s</sup> . |
|----|------------------|------------------|-------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-------------------|------------------|-------------------|
| 0° | 10,0             | 4,7              | 3,8               | 7,4                | 11,7              | 12,7             | 10,0              | 7,3                | 8,3                 | 12,6              | 16,2             | 15,3              |
| 1  | 9,8              | 4,6              | 3,8               | 7,6                | 11,8              | 12,6             | 9,9               | 7,3                | 8,4                 | 12,8              | 16,3             | 15,1              |
| 2  | 9,6              | 4,5              | 3,9               | 7,7                | 11,9              | 12,6             | 9,8               | 7,3                | 8,5                 | 12,9              | 16,3             | 15,0              |
| 3  | 9,4              | 4,4              | 4,0               | 7,9                | 12,0              | 12,5             | 9,7               | 7,2                | 8,6                 | 13,1              | 16,4             | 14,9              |
| 4  | 9,2              | 4,3              | 4,1               | 8,1                | 12,1              | 12,5             | 9,6               | 7,2                | 8,7                 | 13,2              | 16,4             | 14,7              |
| 5  | 9,0              | 4,2              | 4,1               | 8,3                | 12,1              | 12,4             | 9,4               | 7,2                | 8,8                 | 13,4              | 16,4             | 14,6              |
| 6  | 8,8              | 4,1              | 4,2               | 8,4                | 12,2              | 12,4             | 9,3               | 7,2                | 9,0                 | 13,5              | 16,5             | 14,5              |
| 7  | 8,6              | 4,0              | 4,3               | 8,5                | 12,2              | 12,3             | 9,2               | 7,2                | 9,1                 | 13,7              | 16,5             | 14,3              |
| 8  | 8,4              | 4,0              | 4,4               | 8,7                | 12,3              | 12,2             | 9,1               | 7,2                | 9,2                 | 13,8              | 16,5             | 14,1              |
| 9  | 8,2              | 3,9              | 4,5               | 8,9                | 12,4              | 12,1             | 9,0               | 7,2                | 9,4                 | 14,0              | 16,5             | 14,0              |
| 10 | 8,0              | 3,8              | 4,6               | 9,0                | 12,5              | 12,1             | 8,9               | 7,2                | 9,5                 | 14,1              | 16,5             | 13,8              |
| 11 | 7,8              | 3,7              | 4,7               | 9,2                | 12,5              | 12,0             | 8,8               | 7,2                | 9,6                 | 14,3              | 16,5             | 13,7              |
| 12 | 7,6              | 3,7              | 4,8               | 9,3                | 12,6              | 11,9             | 8,7               | 7,2                | 9,8                 | 14,4              | 16,5             | 13,5              |
| 13 | 7,4              | 3,6              | 5,0               | 9,5                | 12,6              | 11,8             | 8,6               | 7,2                | 9,9                 | 14,5              | 16,5             | 13,3              |
| 14 | 7,2              | 3,6              | 5,1               | 9,6                | 12,7              | 11,7             | 8,5               | 7,2                | 10,1                | 14,7              | 16,5             | 13,1              |
| 15 | 7,0              | 3,6              | 5,2               | 9,8                | 12,7              | 11,6             | 8,4               | 7,3                | 10,2                | 14,8              | 16,4             | 13,0              |
| 16 | 6,9              | 3,5              | 5,3               | 9,9                | 12,8              | 11,5             | 8,3               | 7,3                | 10,4                | 14,9              | 16,4             | 12,8              |
| 17 | 6,7              | 3,5              | 5,5               | 10,1               | 12,8              | 11,4             | 8,2               | 7,4                | 10,5                | 15,0              | 16,4             | 12,6              |
| 18 | 6,5              | 3,5              | 5,6               | 10,2               | 12,8              | 11,3             | 8,1               | 7,4                | 10,7                | 15,2              | 16,3             | 12,4              |
| 19 | 6,3              | 3,5              | 5,7               | 10,4               | 12,8              | 11,2             | 8,0               | 7,5                | 10,8                | 15,3              | 16,3             | 12,2              |
| 20 | 6,2              | 3,5              | 5,9               | 10,5               | 12,8              | 11,1             | 7,9               | 7,5                | 11,0                | 15,4              | 16,2             | 12,0              |
| 21 | 6,0              | 3,5              | 6,0               | 10,6               | 12,8              | 11,0             | 7,9               | 7,6                | 11,1                | 15,5              | 16,1             | 11,8              |
| 22 | 5,9              | 3,5              | 6,2               | 10,8               | 12,8              | 10,9             | 7,8               | 7,6                | 11,3                | 15,6              | 16,0             | 11,6              |
| 23 | 5,7              | 3,5              | 6,3               | 10,9               | 12,8              | 10,8             | 7,7               | 7,7                | 11,5                | 15,7              | 15,9             | 11,4              |
| 24 | 5,5              | 3,5              | 6,5               | 11,0               | 12,8              | 10,7             | 7,6               | 7,7                | 11,6                | 15,8              | 15,9             | 11,2              |
| 25 | 5,4              | 3,6              | 6,6               | 11,2               | 12,8              | 10,6             | 7,6               | 7,8                | 11,7                | 15,9              | 15,8             | 11,0              |
| 26 | 5,3              | 3,6              | 6,8               | 11,3               | 12,8              | 10,4             | 7,5               | 7,9                | 11,9                | 15,9              | 15,7             | 10,8              |
| 27 | 5,1              | 3,6              | 6,9               | 11,4               | 12,8              | 10,3             | 7,5               | 8,0                | 12,1                | 16,0              | 15,6             | 10,6              |
| 28 | 5,0              | 3,7              | 7,1               | 11,5               | 12,7              | 10,2             | 7,4               | 8,1                | 12,3                | 16,1              | 15,5             | 10,4              |
| 29 | 4,9              | 3,7              | 7,2               | 11,6               | 12,7              | 10,1             | 7,4               | 8,2                | 12,4                | 16,2              | 15,4             | 10,2              |
| 30 | 4,7              | 3,8              | 7,4               | 11,7               | 12,7              | 10,0             | 7,3               | 8,3                | 12,6                | 16,2              | 15,3             | 10,0              |



TABLE XI.

Equation V. Argument V.

ARGUMENT V.  $= (\zeta - \odot) - A.$ 

|    | O <sup>s</sup> . | I <sup>s</sup> . | II <sup>s</sup> . | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . | IX <sup>s</sup> . | X <sup>s</sup> . | XI <sup>s</sup> . |
|----|------------------|------------------|-------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-------------------|------------------|-------------------|
| 0° | 2'. 0",0         | 0'. 58",6        | 0'. 50",7         | 1'. 38",6          | 2'. 32",2         | 2'. 40",0        | 2'. 0",0          | 1'. 20",0          | 1'. 27",8           | 2'. 21",4         | 3'. 9",3         | 3'. 1",4          |
| 1  | 1. 57,6          | 0. 57,2          | 0. 51,6           | 1. 40,6            | 2. 33,4           | 2. 39,4          | 1. 58,3           | 1. 19,3            | 1. 29,0             | 2. 23,4           | 3. 10,1          | 3. 0,1            |
| 2  | 1. 55,2          | 0. 56,0          | 0. 52,5           | 1. 42,7            | 2. 34,5           | 2. 38,9          | 1. 56,6           | 1. 18,7            | 1. 30,3             | 2. 25,5           | 3. 10,8          | 2. 58,6           |
| 3  | 1. 52,8          | 0. 54,8          | 0. 53,5           | 1. 44,7            | 2. 35,6           | 2. 37,7          | 1. 55,0           | 1. 18,1            | 1. 31,6             | 2. 27,5           | 3. 11,5          | 2. 57,1           |
| 4  | 1. 50,4          | 0. 53,7          | 0. 54,6           | 1. 46,8            | 2. 36,6           | 2. 36,8          | 1. 53,3           | 1. 17,6            | 1. 33,0             | 2. 29,5           | 3. 12,1          | 2. 55,6           |
| 5  | 1. 48,0          | 0. 52,7          | 0. 55,8           | 1. 48,9            | 2. 37,5           | 2. 35,8          | 1. 51,7           | 1. 17,2            | 1. 34,5             | 2. 31,5           | 3. 12,6          | 2. 53,9           |
| 6  | 1. 45,6          | 0. 51,7          | 0. 56,9           | 1. 50,9            | 2. 38,4           | 2. 34,9          | 1. 50,0           | 1. 16,8            | 1. 36,0             | 2. 33,5           | 3. 13,1          | 2. 52,2           |
| 7  | 1. 43,2          | 0. 50,8          | 0. 58,2           | 1. 52,9            | 2. 39,2           | 2. 33,8          | 1. 48,4           | 1. 16,6            | 1. 37,5             | 2. 35,5           | 3. 13,4          | 2. 50,5           |
| 8  | 1. 40,9          | 0. 50,0          | 0. 59,5           | 1. 54,9            | 2. 40,0           | 2. 32,7          | 1. 46,8           | 1. 16,3            | 1. 39,1             | 2. 37,4           | 3. 13,7          | 2. 48,7           |
| 9  | 1. 38,6          | 0. 49,2          | 1. 0,8            | 1. 56,8            | 2. 40,7           | 2. 31,6          | 1. 45,2           | 1. 16,1            | 1. 40,8             | 2. 39,3           | 3. 13,9          | 2. 46,9           |
| 10 | 1. 36,2          | 0. 48,5          | 1. 2,2            | 1. 58,9            | 2. 41,3           | 2. 30,3          | 1. 43,7           | 1. 16,1            | 1. 42,4             | 2. 41,2           | 3. 14,1          | 2. 45,0           |
| 11 | 1. 34,0          | 0. 47,9          | 1. 3,6            | 2. 0,8             | 2. 41,9           | 2. 29,1          | 1. 42,1           | 1. 16,0            | 1. 44,2             | 2. 43,0           | 3. 14,2          | 2. 43,0           |
| 12 | 1. 31,7          | 0. 47,4          | 1. 5,2            | 2. 2,8             | 2. 42,4           | 2. 27,8          | 1. 40,6           | 1. 16,0            | 1. 45,9             | 2. 44,8           | 3. 14,2          | 2. 41,0           |
| 13 | 1. 29,5          | 0. 46,9          | 1. 6,8            | 2. 4,8             | 2. 42,8           | 2. 26,5          | 1. 39,1           | 1. 16,1            | 1. 47,7             | 2. 46,6           | 3. 14,1          | 2. 39,0           |
| 14 | 1. 27,3          | 0. 46,6          | 1. 8,4            | 2. 6,7             | 2. 43,2           | 2. 25,2          | 1. 37,6           | 1. 16,3            | 1. 49,5             | 2. 48,3           | 3. 14,0          | 2. 36,9           |
| 15 | 1. 25,2          | 0. 46,3          | 1. 10,0           | 2. 8,6             | 2. 43,5           | 2. 23,8          | 1. 36,2           | 1. 16,5            | 1. 51,4             | 2. 50,0           | 3. 13,7          | 2. 34,8           |
| 16 | 1. 23,1          | 0. 46,0          | 1. 11,7           | 2. 10,5            | 2. 43,7           | 2. 22,3          | 1. 34,8           | 1. 16,8            | 1. 53,3             | 2. 51,6           | 3. 13,4          | 2. 32,7           |
| 17 | 1. 21,0          | 0. 45,9          | 1. 13,4           | 2. 12,3            | 2. 43,9           | 2. 20,9          | 1. 33,5           | 1. 17,2            | 1. 55,2             | 2. 53,2           | 3. 13,1          | 2. 30,5           |
| 18 | 1. 19,0          | 0. 45,8          | 1. 15,2           | 2. 14,1            | 2. 44,0           | 2. 19,4          | 1. 32,2           | 1. 17,6            | 1. 57,2             | 2. 54,8           | 3. 12,6          | 2. 28,3           |
| 19 | 1. 17,0          | 0. 45,8          | 1. 17,0           | 2. 15,8            | 2. 44,0           | 2. 17,9          | 1. 30,9           | 1. 18,1            | 1. 59,2             | 2. 56,4           | 3. 12,1          | 2. 26,0           |
| 20 | 1. 15,0          | 0. 45,9          | 1. 18,8           | 2. 17,6            | 2. 43,9           | 2. 16,3          | 1. 29,7           | 1. 18,7            | 2. 1,2              | 2. 57,8           | 3. 11,5          | 2. 23,8           |
| 21 | 1. 13,1          | 0. 46,1          | 1. 20,7           | 2. 19,2            | 2. 43,9           | 2. 14,7          | 1. 28,5           | 1. 19,3            | 2. 3,2              | 2. 59,2           | 3. 10,8          | 2. 21,4           |
| 22 | 1. 11,3          | 0. 46,2          | 1. 22,6           | 2. 20,9            | 2. 43,7           | 2. 13,1          | 1. 27,3           | 1. 20,0            | 2. 5,1              | 3. 0,5            | 3. 10,0          | 2. 19,1           |
| 23 | 1. 9,5           | 0. 46,6          | 1. 24,5           | 2. 22,5            | 2. 43,4           | 2. 11,6          | 1. 26,2           | 1. 20,8            | 2. 7,1              | 3. 1,8            | 3. 9,2           | 2. 16,8           |
| 24 | 1. 7,8           | 0. 46,9          | 1. 26,6           | 2. 24,0            | 2. 43,2           | 2. 10,0          | 1. 25,1           | 1. 21,6            | 2. 9,1              | 3. 3,1            | 3. 8,3           | 2. 14,4           |
| 25 | 1. 6,1           | 0. 47,3          | 1. 28,5           | 2. 25,5            | 2. 42,8           | 2. 8,3           | 1. 24,2           | 1. 22,5            | 2. 11,1             | 3. 4,2            | 3. 7,3           | 2. 12,0           |
| 26 | 1. 4,4           | 0. 47,9          | 1. 30,5           | 2. 27,0            | 2. 42,4           | 2. 6,7           | 1. 23,2           | 1. 23,4            | 2. 13,1             | 3. 5,4            | 3. 6,3           | 2. 9,6            |
| 27 | 1. 2,9           | 0. 48,5          | 1. 32,5           | 2. 28,4            | 2. 41,9           | 2. 5,0           | 1. 22,3           | 1. 24,4            | 2. 15,2             | 3. 6,5            | 3. 5,2           | 2. 7,2            |
| 28 | 1. 1,4           | 0. 49,2          | 1. 34,5           | 2. 29,7            | 2. 41,3           | 2. 3,4           | 1. 21,4           | 1. 25,5            | 2. 17,3             | 3. 7,5            | 3. 4,0           | 2. 4,8            |
| 29 | 0. 59,9          | 0. 49,9          | 1. 36,6           | 2. 31,0            | 2. 40,7           | 2. 1,7           | 1. 20,6           | 1. 26,6            | 2. 19,4             | 3. 8,4            | 3. 2,8           | 2. 2,4            |
| 30 | 0. 58,6          | 0. 50,7          | 1. 38,6           | 2. 32,2            | 2. 40,0           | 2. 0,0           | 1. 20,0           | 1. 27,8            | 2. 21,4             | 3. 9,3            | 3. 1,4           | 2. 0,0            |



TABLE XII.

Equation VI. Argument VI. Evection.

ARGUMENT VI = ( $\zeta - \odot$ ) + Argument V = 2( $\zeta - \odot$ ) - A.

|    | O <sup>s</sup> . | Diff.  | I <sup>s</sup> . | Diff.  | II <sup>s</sup> . | Diff.  | III <sup>s</sup> . | Diff.  | IV <sup>s</sup> . | Diff.  | V <sup>s</sup> . | Diff.  |
|----|------------------|--------|------------------|--------|-------------------|--------|--------------------|--------|-------------------|--------|------------------|--------|
| 0  | 1.33. 0,0        | 1.25,5 | 2.13.45,4        | 1.13,2 | 2.43.13,1         | 0.40,9 | 2.53.29,5          | 0.2,0  | 2.42.11,8         | 0.43,4 | 2.12.44,1        | 1.12,7 |
| 1  | 1.34.25,5        | 1.25,5 | 2.14.58,6        | 1.12,5 | 2.43.54,0         | 0.39,5 | 2.53.27,5          | 0.3,4  | 2.41.28,4         | 0.44,6 | 2.11.31,4        | 1.13,4 |
| 2  | 1.35.51,0        | 1.25,5 | 2.16.11,1        | 1.11,6 | 2.44.33,5         | 0.38,2 | 2.53.24,1          | 0.5,0  | 2.40.43,8         | 0.45,8 | 2.10.18,0        | 1.14,1 |
| 3  | 1.37.16,5        | 1.25,4 | 2.17.22,7        | 1.10,8 | 2.45.11,7         | 0.36,9 | 2.53.19,1          | 0.6,3  | 2.39.58,0         | 0.47,0 | 2.9.3,9          | 1.14,7 |
| 4  | 1.38.41,9        | 1.25,2 | 2.18.33,5        | 1.9,9  | 2.45.48,6         | 0.35,5 | 2.53.12,8          | 0.7,8  | 2.39.11,0         | 0.48,2 | 2.7.49,2         | 1.15,3 |
| 5  | 1.40.7,1         | 1.25,1 | 2.19.43,4        | 1.9,0  | 2.46.24,1         | 0.34,2 | 2.53.5,0           | 0.9,3  | 2.38.22,8         | 0.49,4 | 2.6.33,9         | 1.15,9 |
| 6  | 1.41.32,2        | 1.24,9 | 2.20.52,4        | 1.8,1  | 2.46.58,3         | 0.32,7 | 2.52.55,7          | 0.10,8 | 2.37.33,4         | 0.50,5 | 2.5.18,0         | 1.16,4 |
| 7  | 1.42.57,1        | 1.24,8 | 2.22.0,5         | 1.7,2  | 2.47.31,0         | 0.31,4 | 2.52.44,9          | 0.12,2 | 2.36.42,9         | 0.51,6 | 2.4.1,6          | 1.17,0 |
| 8  | 1.44.21,9        | 1.24,5 | 2.23.7,7         | 1.6,2  | 2.48.2,4          | 0.30,0 | 2.52.32,7          | 0.13,6 | 2.35.51,3         | 0.52,7 | 2.2.44,6         | 1.17,6 |
| 9  | 1.45.46,4        | 1.24,3 | 2.24.13,9        | 1.5,3  | 2.48.32,4         | 0.28,6 | 2.52.19,1          | 0.15,1 | 2.34.58,6         | 0.53,9 | 2.1.27,0         | 1.18,0 |
| 10 | 1.47.10,7        | 1.24,1 | 2.25.19,2        | 1.4,3  | 2.49.1,0          | 0.27,2 | 2.52.4,0           | 0.16,5 | 2.34.4,7          | 0.54,9 | 2.0.9,0          | 1.18,5 |
| 11 | 1.48.34,8        | 1.23,7 | 2.26.23,5        | 1.3,3  | 2.49.28,2         | 0.25,7 | 2.51.47,5          | 0.18,0 | 2.33.9,8          | 0.56,0 | 1.58.50,5        | 1.18,9 |
| 12 | 1.49.58,5        | 1.23,4 | 2.27.26,8        | 1.2,2  | 2.49.53,9         | 0.24,4 | 2.51.29,5          | 0.19,3 | 2.32.13,8         | 0.57,0 | 1.57.31,6        | 1.19,4 |
| 13 | 1.51.21,9        | 1.23,1 | 2.28.29,0        | 1.1,2  | 2.50.18,3         | 0.22,9 | 2.51.10,2          | 0.20,8 | 2.31.16,8         | 0.58,1 | 1.56.12,2        | 1.19,8 |
| 14 | 1.52.45,0        | 1.22,7 | 2.29.30,2        | 1.0,2  | 2.50.41,2         | 0.21,4 | 2.50.49,4          | 0.22,2 | 2.30.18,7         | 0.59,1 | 1.54.52,4        | 1.20,1 |
| 15 | 1.54.7,7         | 1.22,3 | 2.30.30,4        | 0.59,0 | 2.51.2,6          | 0.20,0 | 2.50.27,2          | 0.23,5 | 2.29.19,6         | 1.0,1  | 1.53.32,3        | 1.20,5 |
| 16 | 1.55.30,0        | 1.21,8 | 2.31.29,4        | 0.58,0 | 2.51.22,6         | 0.18,6 | 2.50.3,7           | 0.25,0 | 2.28.19,5         | 1.1,1  | 1.52.11,8        | 1.20,9 |
| 17 | 1.56.51,8        | 1.21,6 | 2.32.27,4        | 0.56,8 | 2.51.41,2         | 0.17,2 | 2.49.38,7          | 0.26,4 | 2.27.18,4         | 1.2,0  | 1.50.50,9        | 1.21,2 |
| 18 | 1.58.13,4        | 1.20,7 | 2.33.24,2        | 0.55,7 | 2.51.58,4         | 0.15,6 | 2.49.12,3          | 0.27,7 | 2.26.16,4         | 1.3,0  | 1.49.29,7        | 1.21,5 |
| 19 | 1.59.34,1        | 1.20,4 | 2.34.19,9        | 0.54,6 | 2.52.14,0         | 0.14,2 | 2.48.44,6          | 0.29,1 | 2.25.13,4         | 1.3,9  | 1.48.8,2         | 1.21,7 |
| 20 | 2.0.54,5         | 1.19,9 | 2.35.14,5        | 0.53,4 | 2.52.28,2         | 0.12,8 | 2.48.15,5          | 0.30,4 | 2.24.9,5          | 1.4,8  | 1.46.46,5        | 1.22,0 |
| 21 | 2.2.14,4         | 1.19,4 | 2.36.7,9         | 0.52,1 | 2.52.41,0         | 0.11,2 | 2.47.45,1          | 0.31,8 | 2.23.4,7          | 1.5,7  | 1.45.24,5        | 1.22,1 |
| 22 | 2.3.33,8         | 1.18,7 | 2.37.0,0         | 0.51,0 | 2.52.52,2         | 0.9,9  | 2.47.13,3          | 0.33,2 | 2.21.59,0         | 1.6,6  | 1.44.2,4         | 1.22,4 |
| 23 | 2.4.52,5         | 1.18,1 | 2.37.51,0        | 0.49,8 | 2.53.2,1          | 0.8,3  | 2.46.40,1          | 0.34,4 | 2.20.52,4         | 1.7,4  | 1.42.40,0        | 1.22,5 |
| 24 | 2.6.10,6         | 1.17,5 | 2.38.40,8        | 0.48,6 | 2.53.10,4         | 0.6,9  | 2.46.5,7           | 0.35,8 | 2.19.45,0         | 1.8,2  | 1.41.17,5        | 1.22,7 |
| 25 | 2.7.28,1         | 1.16,9 | 2.39.29,4        | 0.47,3 | 2.53.17,3         | 0.5,3  | 2.45.29,9          | 0.37,1 | 2.18.36,8         | 1.9,0  | 1.39.54,8        | 1.22,8 |
| 26 | 2.8.45,0         | 1.16,2 | 2.40.16,7        | 0.46,0 | 2.53.22,6         | 0.4,0  | 2.44.52,8          | 0.38,1 | 2.17.27,8         | 1.9,8  | 1.38.32,0        | 1.22,9 |
| 27 | 2.10.1,2         | 1.15,5 | 2.41.2,7         | 0.44,8 | 2.53.26,6         | 0.2,4  | 2.44.14,1          | 0.39,3 | 2.16.18,0         | 1.10,6 | 1.37.9,1         | 1.23,0 |
| 28 | 2.11.16,7        | 1.14,7 | 2.41.47,5        | 0.43,4 | 2.53.29,0         | 0.1,0  | 2.43.34,8          | 0.40,9 | 2.15.7,4          | 1.11,3 | 1.35.46,1        | 1.23,0 |
| 29 | 2.12.31,4        | 1.14,0 | 2.42.30,9        | 0.42,2 | 2.53.30,0         | 0.0,5  | 2.42.53,9          | 0.42,1 | 2.13.56,1         | 1.12,0 | 1.34.23,1        | 1.23,1 |
| 30 | 2.13.45,4        |        | 2.43.13,1        |        | 2.53.29,5         |        | 2.42.11,8          |        | 2.12.44,1         |        | 1.33.0,0         |        |



## Continuation of TABLE XII.

Equation VI. Argument VI. Evection.

$$\text{ARGUMENT VI.} = (\odot - \ominus) + \text{Argument V} = 2(\odot - \ominus) - A.$$

|    | VI <sup>s</sup> . | Diff.  | VII <sup>s</sup> . | Diff.  | VIII <sup>s</sup> . | Diff.  | IX <sup>s</sup> . | Diff.  | X <sup>s</sup> . | Diff.  | XI <sup>s</sup> . | Diff.  |
|----|-------------------|--------|--------------------|--------|---------------------|--------|-------------------|--------|------------------|--------|-------------------|--------|
| 0  | 1.33. 0,0         | 1.23,1 | 0.53.15,9          | 1.12,0 | 0.23.48,2           | 0.42,1 | 0.12.30,5         | 0. 0,5 | 0.22.46,9        | 0.42,0 | 0.52.14,6         | 1.14,0 |
| 1  | 1.31.36,9         | 1.23,0 | 0.52. 3,9          | 1.11,3 | 0.23. 6,1           | 0.40,9 | 0.12.30,0         | 0. 1,0 | 0.23.29,1        | 0.43,4 | 0.53.28,6         | 1.14,7 |
| 2  | 1.30.13,9         | 1.23,0 | 0.50.52,6          | 1.10,6 | 0.22.25,2           | 0.39,7 | 0.12.31,0         | 0. 2,4 | 0.24.12,5        | 0.44,8 | 0.54.43,3         | 1.15,5 |
| 3  | 1.28.50,9         | 1.22,9 | 0.49.42,0          | 1. 9,8 | 0.21.45,5           | 0.38,3 | 0.12.33,4         | 0. 4,0 | 0.24.57,3        | 0.46,0 | 0.55.58,8         | 1.16,2 |
| 4  | 1.27.28,0         | 1.22,8 | 0.48.32,2          | 1. 9,0 | 0.21. 7,2           | 0.37,1 | 0.12.37,4         | 0. 5,3 | 0.25.43,3        | 0.47,3 | 0.57.15,0         | 1.16,9 |
| 5  | 1.26. 5,2         | 1.22,7 | 0.47.23,2          | 1. 8,2 | 0.20.30,1           | 0.35,8 | 0.12.42,7         | 0. 6,9 | 0.26.30,6        | 0.48,6 | 0.58.31,9         | 1.17,5 |
| 6  | 1.24.42,5         | 1.22,5 | 0.46.15,0          | 1. 7,4 | 0.19.54,3           | 0.34,4 | 0.12.49,6         | 0. 8,3 | 0.27.19,2        | 0.49,8 | 0.59.49,4         | 1.18,1 |
| 7  | 1.23.20,0         | 1.22,4 | 0.45. 7,6          | 1. 6,6 | 0.19.19,9           | 0.33,2 | 0.12.57,9         | 0. 9,9 | 0.28. 9,0        | 0.51,0 | 1. 1. 7,5         | 1.18,7 |
| 8  | 1.21.57,6         | 1.22,1 | 0.44. 1,0          | 1. 5,7 | 0.18.46,7           | 0.31,8 | 0.13. 7,8         | 0.11,2 | 0.29. 0,0        | 0.52,1 | 1. 2.26,2         | 1.19,4 |
| 9  | 1.20.35,5         | 1.22,0 | 0.42.55,3          | 1. 4,8 | 0.18.14,9           | 0.30,4 | 0.13.19,0         | 0.12,8 | 0.29.52,1        | 0.53,4 | 1. 3.45,6         | 1.19,9 |
| 10 | 1.19.13,5         | 1.21,7 | 0.41.50,5          | 1. 3,9 | 0.17.44,5           | 0.29,1 | 0.13.31,8         | 0.14,2 | 0.30.45,5        | 0.54,6 | 1. 5. 5,5         | 1.20,4 |
| 11 | 1.17.51,8         | 1.21,5 | 0.40.46,6          | 1. 3,0 | 0.17.15,4           | 0.27,7 | 0.13.46,0         | 0.15,6 | 0.31.40,1        | 0.55,7 | 1. 6.25,9         | 1.20,8 |
| 12 | 1.16.30,3         | 1.21,2 | 0.39.43,6          | 1. 2,0 | 0.16.47,7           | 0.26,4 | 0.14. 1,6         | 0.17,2 | 0.32.35,8        | 0.56,8 | 1. 7.46,7         | 1.21,4 |
| 13 | 1.15. 9,1         | 1.20,9 | 0.38.41,6          | 1. 1,1 | 0.16.21,3           | 0.25,0 | 0.14.18,8         | 0.18,6 | 0.33.32,6        | 0.58,0 | 1. 9. 8,1         | 1.21,9 |
| 14 | 1.13.48,2         | 1.20,5 | 0.37.40,5          | 1. 0,1 | 0.15.56,3           | 0.23,5 | 0.14.37,4         | 0.20,0 | 0.34.30,6        | 0.59,0 | 1.10.30,0         | 1.22,3 |
| 15 | 1.12.27,7         | 1.20,1 | 0.36.40,4          | 0.59,1 | 0.15.32,8           | 0.22,2 | 0.14.57,4         | 0.21,4 | 0.35.29,6        | 1. 0,2 | 1.11.52,3         | 1.22,7 |
| 16 | 1.11. 7,6         | 1.19,8 | 0.35.41,3          | 0.58,1 | 0.15.10,6           | 0.20,8 | 0.15.18,8         | 0.22,9 | 0.36.29,8        | 1. 1,2 | 1.13.15,0         | 1.23,1 |
| 17 | 1. 9.47,8         | 1.19,4 | 0.34.43,2          | 0.57,0 | 0.14.49,8           | 0.19,3 | 0.15.41,7         | 0.24,4 | 0.37.31,0        | 1. 2,2 | 1.14.38,1         | 1.23,4 |
| 18 | 1. 8.28,4         | 1.18,9 | 0.33.46,2          | 0.56,0 | 0.14.30,5           | 0.18,0 | 0.16. 6,1         | 0.25,7 | 0.38.33,2        | 1. 3,3 | 1.16. 1,5         | 1.23,7 |
| 19 | 1. 7. 9,5         | 1.18,5 | 0.32.50,2          | 0.54,9 | 0.14.12,5           | 0.17,5 | 0.16.31,8         | 0.27,2 | 0.39.36,5        | 1. 4,3 | 1.17.25,2         | 1.24,1 |
| 20 | 1. 5.51,0         | 1.18,0 | 0.31.55,3          | 0.53,9 | 0.13.55,0           | 0.14,1 | 0.16.59,0         | 0.28,6 | 0.40.40,8        | 1. 5,3 | 1.18.49,3         | 1.24,3 |
| 21 | 1. 4.33,0         | 1.17,6 | 0.31. 1,4          | 0.52,7 | 0.13.40,9           | 0.13,6 | 0.17.27,6         | 0.30,0 | 0.41.46,1        | 1. 6,2 | 1.20.13,2         | 1.24,5 |
| 22 | 1. 3.15,4         | 1.17,0 | 0.30. 8,7          | 0.51,6 | 0.13.27,3           | 0.12,2 | 0.17.57,6         | 0.31,4 | 0.42.52,3        | 1. 7,2 | 1.21.38,1         | 1.24,8 |
| 23 | 1. 1.58,4         | 1.16,4 | 0.29.17,1          | 0.50,5 | 0.13.15,1           | 0.10,8 | 0.18.29,0         | 0.32,7 | 0.43.59,5        | 1. 8,1 | 1.23. 2,9         | 1.24,9 |
| 24 | 1. 0.42,0         | 1.15,9 | 0.28.26,6          | 0.49,4 | 0.13. 4,3           | 0. 9,3 | 0.19. 1,7         | 0.34,2 | 0.45. 7,6        | 1. 9,0 | 1.24.27,8         | 1.25,1 |
| 25 | 0.59.26,1         | 1.15,3 | 0.27.37,2          | 0.48,2 | 0.12.55,0           | 0. 7,8 | 0.19.35,9         | 0.35,5 | 0.46.16,6        | 1. 9,9 | 1.25.52,9         | 1.25,3 |
| 26 | 0.58.10,8         | 1.14,7 | 0.26.49,0          | 0.47,0 | 0.12.47,2           | 0. 6,3 | 0.20.11,4         | 0.36,9 | 0.47.26,5        | 1.10,8 | 1.27.18,2         | 1.25,4 |
| 27 | 0.56.56,1         | 1.14,1 | 0.26. 2,0          | 0.45,8 | 0.12.40,9           | 0. 5,0 | 0.20.48,3         | 0.38,2 | 0.48.37,3        | 1.11,6 | 1.28.43,6         | 1.25,4 |
| 28 | 0.55.42,0         | 1.13,4 | 0.25.16,2          | 0.44,6 | 0.12.35,9           | 0. 3,4 | 0.21.26,5         | 0.39,5 | 0.49.48,9        | 1.12,4 | 1.30. 9,0         | 1.25,5 |
| 29 | 0.54.28,6         | 1.12,7 | 0.24.31,6          | 0.43,4 | 0.12.32,5           | 0. 2,0 | 0.22. 6,0         | 0.40,9 | 0.51. 1,3        | 1.13,3 | 1.31.34,5         | 1.25,5 |
| 30 | 0.53.15,9         |        | 0.23.48,2          |        | 0.12.30,5           |        | 0.22.46,9         |        | 0.52.14,6        |        | 1.33. 0,0         |        |



TABLE XIII.

Equation VII.

ARGUMENT VII. = VI + 2A = 2(☾ - ☉) + A.

|    | IX <sup>s</sup> .   | X <sup>s</sup> .   | XI <sup>s</sup> . | Os.              | I <sup>s</sup> .  | II <sup>s</sup> .  |    |
|----|---------------------|--------------------|-------------------|------------------|-------------------|--------------------|----|
| 0  | 1. 57,8             | 1. 50,1            | 1. 28,9           | 1. 0,0           | 0. 31,1           | 0. 9,9             | 30 |
| 1  | 1. 57,8             | 1. 49,6            | 1. 28,0           | 0. 59,0          | 0. 30,2           | 0. 9,4             | 29 |
| 2  | 1. 57,8             | 1. 49,1            | 1. 27,1           | 0. 58,0          | 0. 29,3           | 0. 8,9             | 28 |
| 3  | 1. 57,7             | 1. 48,5            | 1. 26,2           | 0. 57,0          | 0. 28,5           | 0. 8,5             | 27 |
| 4  | 1. 57,7             | 1. 48,0            | 1. 25,3           | 0. 56,0          | 0. 27,6           | 0. 8,0             | 26 |
| 5  | 1. 57,6             | 1. 47,4            | 1. 24,4           | 0. 55,0          | 0. 26,8           | 0. 7,6             | 25 |
| 6  | 1. 57,5             | 1. 46,8            | 1. 23,5           | 0. 54,0          | 0. 26,0           | 0. 7,2             | 24 |
| 7  | 1. 57,4             | 1. 46,2            | 1. 22,5           | 0. 53,0          | 0. 25,2           | 0. 6,8             | 23 |
| 8  | 1. 57,2             | 1. 45,6            | 1. 21,6           | 0. 52,0          | 0. 24,4           | 0. 6,4             | 22 |
| 9  | 1. 57,1             | 1. 45,0            | 1. 20,6           | 0. 51,0          | 0. 23,6           | 0. 6,0             | 21 |
| 10 | 1. 56,9             | 1. 44,3            | 1. 19,7           | 0. 50,0          | 0. 22,8           | 0. 5,7             | 20 |
| 11 | 1. 56,7             | 1. 43,6            | 1. 18,8           | 0. 49,0          | 0. 22,0           | 0. 5,4             | 19 |
| 12 | 1. 56,5             | 1. 43,0            | 1. 17,8           | 0. 48,0          | 0. 21,3           | 0. 5,1             | 18 |
| 13 | 1. 56,3             | 1. 42,3            | 1. 16,9           | 0. 47,0          | 0. 20,5           | 0. 4,8             | 17 |
| 14 | 1. 56,1             | 1. 41,6            | 1. 15,9           | 0. 46,0          | 0. 19,8           | 0. 4,5             | 16 |
| 15 | 1. 55,8             | 1. 40,9            | 1. 15,0           | 0. 45,0          | 0. 19,1           | 0. 4,2             | 15 |
| 16 | 1. 55,5             | 1. 40,2            | 1. 14,1           | 0. 44,1          | 0. 18,4           | 0. 3,9             | 14 |
| 17 | 1. 55,2             | 1. 39,5            | 1. 13,0           | 0. 43,1          | 0. 17,7           | 0. 3,7             | 13 |
| 18 | 1. 54,9             | 1. 38,7            | 1. 12,0           | 0. 42,2          | 0. 17,0           | 0. 3,5             | 12 |
| 19 | 1. 54,6             | 1. 38,0            | 1. 11,0           | 0. 41,2          | 0. 16,4           | 0. 3,3             | 11 |
| 20 | 1. 54,3             | 1. 37,2            | 1. 10,0           | 0. 40,3          | 0. 15,7           | 0. 3,1             | 10 |
| 21 | 1. 54,0             | 1. 36,4            | 1. 9,0            | 0. 39,4          | 0. 15,0           | 0. 2,9             | 9  |
| 22 | 1. 53,6             | 1. 35,6            | 1. 8,0            | 0. 38,4          | 0. 14,4           | 0. 2,8             | 8  |
| 23 | 1. 53,2             | 1. 34,8            | 1. 7,0            | 0. 37,5          | 0. 13,8           | 0. 2,6             | 7  |
| 24 | 1. 52,8             | 1. 34,0            | 1. 6,0            | 0. 36,5          | 0. 13,2           | 0. 2,5             | 6  |
| 25 | 1. 52,4             | 1. 33,2            | 1. 5,0            | 0. 35,6          | 0. 12,6           | 0. 2,4             | 5  |
| 26 | 1. 52,0             | 1. 32,4            | 1. 4,0            | 0. 34,7          | 0. 12,0           | 0. 2,3             | 4  |
| 27 | 1. 51,5             | 1. 31,5            | 1. 3,0            | 0. 33,8          | 0. 11,5           | 0. 2,3             | 3  |
| 28 | 1. 51,1             | 1. 30,7            | 1. 2,0            | 0. 32,9          | 0. 10,9           | 0. 2,2             | 2  |
| 29 | 1. 50,6             | 1. 29,8            | 1. 1,0            | 0. 32,0          | 0. 10,4           | 0. 2,2             | 1  |
| 30 | 1. 50,1             | 1. 28,9            | 1. 0,0            | 0. 31,1          | 0. 9,9            | 0. 2,2             | 0  |
|    | VIII <sup>s</sup> . | VII <sup>s</sup> . | VI <sup>s</sup> . | V <sup>s</sup> . | IV <sup>s</sup> . | III <sup>s</sup> . |    |

Yearly Var.  
of Obliq.

|    |      |
|----|------|
| 1  | 0,52 |
| 2  | 1,04 |
| 3  | 1,56 |
| 4  | 2,08 |
| 5  | 2,60 |
| 6  | 3,13 |
| 7  | 3,65 |
| 8  | 4,17 |
| 9  | 4,69 |
| 10 | 5,21 |

TABLE XIV.

Equation VIII.

ARG. VIII. = Arg. VI. - 2A = 2(☾ - ☉) - 3A.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 1  | 0,9                | 1,2               | 2,0              | 3,0               | 4,0                | 4,8                 | 30 |
| 2  | 0,9                | 1,2               | 2,0              | 3,0               | 4,0                | 4,8                 | 29 |
| 3  | 0,9                | 1,2               | 2,1              | 3,0               | 4,1                | 4,8                 | 28 |
| 4  | 0,9                | 1,2               | 2,1              | 3,1               | 4,1                | 4,8                 | 27 |
| 5  | 0,9                | 1,3               | 2,1              | 3,1               | 4,1                | 4,9                 | 26 |
| 6  | 0,9                | 1,3               | 2,2              | 3,2               | 4,2                | 4,9                 | 25 |
| 7  | 0,9                | 1,3               | 2,2              | 3,2               | 4,2                | 4,9                 | 24 |
| 8  | 0,9                | 1,3               | 2,2              | 3,3               | 4,2                | 4,9                 | 23 |
| 9  | 0,9                | 1,4               | 2,2              | 3,3               | 4,3                | 4,9                 | 22 |
| 10 | 0,9                | 1,4               | 2,3              | 3,4               | 4,3                | 5,0                 | 21 |
| 11 | 0,9                | 1,4               | 2,3              | 3,4               | 4,3                | 5,0                 | 20 |
| 12 | 0,9                | 1,4               | 2,3              | 3,4               | 4,3                | 5,0                 | 19 |
| 13 | 0,9                | 1,5               | 2,4              | 3,5               | 4,4                | 5,0                 | 18 |
| 14 | 0,9                | 1,5               | 2,4              | 3,5               | 4,4                | 5,0                 | 17 |
| 15 | 0,9                | 1,5               | 2,4              | 3,5               | 4,4                | 5,0                 | 16 |
| 16 | 0,9                | 1,5               | 2,5              | 3,5               | 4,5                | 5,1                 | 15 |
| 17 | 1,0                | 1,6               | 2,5              | 3,6               | 4,5                | 5,1                 | 14 |
| 18 | 1,0                | 1,6               | 2,5              | 3,6               | 4,5                | 5,1                 | 13 |
| 19 | 1,0                | 1,6               | 2,5              | 3,6               | 4,5                | 5,1                 | 12 |
| 20 | 1,0                | 1,7               | 2,6              | 3,7               | 4,6                | 5,1                 | 11 |
| 21 | 1,0                | 1,7               | 2,6              | 3,7               | 4,6                | 5,1                 | 10 |
| 22 | 1,1                | 1,7               | 2,7              | 3,8               | 4,6                | 5,1                 | 9  |
| 23 | 1,1                | 1,8               | 2,7              | 3,8               | 4,7                | 5,1                 | 8  |
| 24 | 1,1                | 1,8               | 2,8              | 3,8               | 4,7                | 5,1                 | 7  |
| 25 | 1,1                | 1,8               | 2,8              | 3,9               | 4,7                | 5,1                 | 6  |
| 26 | 1,1                | 1,9               | 2,9              | 3,9               | 4,7                | 5,1                 | 5  |
| 27 | 1,2                | 1,9               | 2,9              | 3,9               | 4,8                | 5,1                 | 4  |
| 28 | 1,2                | 1,9               | 3,0              | 4,0               | 4,8                | 5,1                 | 3  |
| 29 | 1,2                | 2,0               | 3,0              | 4,0               | 4,8                | 5,1                 | 2  |
| 30 | 1,2                | 2,0               | 3,0              | 4,0               | 4,8                | 5,1                 | 1  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | Os.              | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   | 0  |



TABLE XV.

Equation IX.

ARGUMENT IX = A - Argument I.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | I. 39,3            | I. 34,0           | I. 19,6          | I. 0,0            | O. 40,4            | O. 26,0             | 30 |
| 1  | I. 39,3            | I. 33,6           | I. 19,0          | O. 59,3           | O. 39,8            | O. 25,7             | 29 |
| 2  | I. 39,2            | I. 33,3           | I. 18,4          | O. 58,6           | O. 39,2            | O. 25,3             | 28 |
| 3  | I. 39,2            | I. 32,9           | I. 17,8          | O. 58,0           | O. 38,7            | O. 25,0             | 27 |
| 4  | I. 39,2            | I. 32,6           | I. 17,2          | O. 57,3           | O. 38,1            | O. 24,7             | 26 |
| 5  | I. 39,1            | I. 32,2           | I. 16,6          | O. 56,6           | O. 37,5            | O. 24,4             | 25 |
| 6  | I. 39,0            | I. 31,8           | I. 16,0          | O. 55,9           | O. 36,9            | O. 24,1             | 24 |
| 7  | I. 39,0            | I. 31,4           | I. 15,3          | O. 55,2           | O. 36,4            | O. 23,9             | 23 |
| 8  | I. 38,9            | I. 30,9           | I. 14,7          | O. 54,6           | O. 35,8            | O. 23,6             | 22 |
| 9  | I. 38,8            | I. 30,5           | I. 14,0          | O. 53,9           | O. 35,2            | O. 23,4             | 21 |
| 10 | I. 38,7            | I. 30,1           | I. 13,4          | O. 53,2           | O. 34,7            | O. 23,1             | 20 |
| 11 | I. 38,6            | I. 29,7           | I. 12,8          | O. 52,5           | O. 34,2            | O. 22,8             | 19 |
| 12 | I. 38,5            | I. 29,2           | I. 12,1          | O. 51,8           | O. 33,7            | O. 22,6             | 18 |
| 13 | I. 38,3            | I. 28,7           | I. 11,5          | O. 51,2           | O. 33,2            | O. 22,4             | 17 |
| 14 | I. 38,2            | I. 28,3           | I. 10,8          | O. 50,5           | O. 32,7            | O. 22,2             | 16 |
| 15 | I. 38,0            | I. 27,8           | I. 10,2          | O. 49,8           | O. 32,2            | O. 22,0             | 15 |
| 16 | I. 37,8            | I. 27,3           | I. 9,5           | O. 49,2           | O. 31,7            | O. 21,8             | 14 |
| 17 | I. 37,6            | I. 26,8           | I. 8,8           | O. 48,5           | O. 31,3            | O. 21,7             | 13 |
| 18 | I. 37,4            | I. 26,3           | I. 8,2           | O. 47,9           | O. 30,8            | O. 21,5             | 12 |
| 19 | I. 37,2            | I. 25,8           | I. 7,5           | O. 47,2           | O. 30,3            | O. 21,4             | 11 |
| 20 | I. 36,9            | I. 25,3           | I. 6,8           | O. 46,6           | O. 29,9            | O. 21,3             | 10 |
| 21 | I. 36,6            | I. 24,8           | I. 6,1           | O. 45,9           | O. 29,5            | O. 21,2             | 9  |
| 22 | I. 36,4            | I. 24,2           | I. 5,4           | O. 45,3           | O. 29,1            | O. 21,1             | 8  |
| 23 | I. 36,1            | I. 23,6           | I. 4,8           | O. 44,7           | O. 28,6            | O. 21,0             | 7  |
| 24 | I. 35,9            | I. 23,1           | I. 4,1           | O. 44,0           | O. 28,2            | O. 21,0             | 6  |
| 25 | I. 35,6            | I. 22,5           | I. 3,4           | O. 43,4           | O. 27,8            | O. 20,9             | 5  |
| 26 | I. 35,3            | I. 21,9           | I. 2,7           | O. 42,8           | O. 27,4            | O. 20,8             | 4  |
| 27 | I. 35,0            | I. 21,3           | I. 2,0           | O. 42,2           | O. 27,1            | O. 20,8             | 3  |
| 28 | I. 34,7            | I. 20,8           | I. 1,4           | O. 41,6           | O. 26,7            | O. 20,8             | 2  |
| 29 | I. 34,3            | I. 20,2           | I. 0,7           | O. 41,0           | O. 26,4            | O. 20,7             | 1  |
| 30 | I. 34,0            | I. 19,6           | I. 0,0           | O. 40,4           | O. 26,0            | O. 20,7             | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |

TABLE XVI.

Equation X.

ARGUMENT X = VII - IX = 2(☾ - ☉) + Arg. I.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | I. 53,9            | I. 46,7           | I. 27,0          | I. 0,0            | O. 33,0            | O. 13,3             | 30 |
| 1  | I. 53,9            | I. 46,2           | I. 26,2          | O. 59,1           | O. 32,2            | O. 12,9             | 29 |
| 2  | I. 53,9            | I. 45,7           | I. 25,3          | O. 58,1           | O. 31,4            | O. 12,4             | 28 |
| 3  | I. 53,8            | I. 45,2           | I. 24,5          | O. 57,2           | O. 30,6            | O. 12,0             | 27 |
| 4  | I. 53,8            | I. 44,7           | I. 23,6          | O. 56,2           | O. 29,9            | O. 11,6             | 26 |
| 5  | I. 53,7            | I. 44,2           | I. 22,8          | O. 55,3           | O. 29,1            | O. 11,2             | 25 |
| 6  | I. 53,6            | I. 43,6           | I. 21,9          | O. 54,4           | O. 28,3            | O. 10,8             | 24 |
| 7  | I. 53,5            | I. 43,1           | I. 21,0          | O. 53,4           | O. 27,6            | O. 10,4             | 23 |
| 8  | I. 53,4            | I. 42,5           | I. 20,2          | O. 52,5           | O. 26,9            | O. 10,0             | 22 |
| 9  | I. 53,2            | I. 41,9           | I. 19,3          | O. 51,5           | O. 26,1            | O. 9,7              | 21 |
| 10 | I. 53,1            | I. 41,3           | I. 18,4          | O. 50,6           | O. 25,4            | O. 9,3              | 20 |
| 11 | I. 52,9            | I. 40,7           | I. 17,5          | O. 49,7           | O. 24,7            | O. 9,0              | 19 |
| 12 | I. 52,7            | I. 40,0           | I. 16,6          | O. 48,8           | O. 24,0            | O. 8,7              | 18 |
| 13 | I. 52,5            | I. 39,4           | I. 15,7          | O. 47,9           | O. 23,3            | O. 8,4              | 17 |
| 14 | I. 52,3            | I. 38,8           | I. 14,8          | O. 47,0           | O. 22,6            | O. 8,2              | 16 |
| 15 | I. 52,1            | I. 38,1           | I. 13,9          | O. 46,1           | O. 21,9            | O. 7,9              | 15 |
| 16 | I. 51,8            | I. 37,4           | I. 13,0          | O. 45,2           | O. 21,2            | O. 7,7              | 14 |
| 17 | I. 51,6            | I. 36,7           | I. 12,1          | O. 44,3           | O. 20,6            | O. 7,5              | 13 |
| 18 | I. 51,3            | I. 36,0           | I. 11,2          | O. 43,4           | O. 20,0            | O. 7,3              | 12 |
| 19 | I. 51,0            | I. 35,3           | I. 10,3          | O. 42,5           | O. 19,3            | O. 7,1              | 11 |
| 20 | I. 50,7            | I. 34,6           | I. 9,4           | O. 41,6           | O. 18,7            | O. 6,9              | 10 |
| 21 | I. 50,3            | I. 33,9           | I. 8,5           | O. 40,7           | O. 18,1            | O. 6,8              | 9  |
| 22 | I. 50,0            | I. 33,1           | I. 7,5           | O. 39,8           | O. 17,5            | O. 6,6              | 8  |
| 23 | I. 49,6            | I. 32,4           | I. 6,6           | O. 39,0           | O. 16,9            | O. 6,5              | 7  |
| 24 | I. 49,2            | I. 31,7           | I. 5,6           | O. 38,1           | O. 16,4            | O. 6,4              | 6  |
| 25 | I. 48,8            | I. 30,9           | I. 4,7           | O. 37,2           | O. 15,8            | O. 6,3              | 5  |
| 26 | I. 48,4            | I. 30,1           | I. 3,8           | O. 36,4           | O. 15,3            | O. 6,2              | 4  |
| 27 | I. 48,0            | I. 29,4           | I. 2,8           | O. 35,5           | O. 14,8            | O. 6,2              | 3  |
| 28 | I. 47,6            | I. 28,6           | I. 1,9           | O. 34,7           | O. 14,3            | O. 6,1              | 2  |
| 29 | I. 47,1            | I. 27,8           | I. 0,9           | O. 33,8           | O. 13,8            | O. 6,1              | 1  |
| 30 | I. 46,7            | I. 27,0           | I. 0,0           | O. 33,0           | O. 13,3            | O. 6,1              | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



TABLE XVII.

Equation XI.

ARG. XI = VI + IX = 2(☾ - ☉) - Arg. I.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | 3. 16,5            | 3. 6,3            | 2. 38,2          | 2. 0,0            | 1. 21,8            | 0. 53,7             | 30 |
| 1  | 3. 16,5            | 3. 5,6            | 2. 37,0          | 1. 58,7           | 1. 20,6            | 0. 53,1             | 29 |
| 2  | 3. 16,4            | 3. 4,9            | 2. 35,8          | 1. 57,3           | 1. 19,5            | 0. 52,5             | 28 |
| 3  | 3. 16,4            | 3. 4,2            | 2. 34,7          | 1. 56,0           | 1. 18,3            | 0. 51,9             | 27 |
| 4  | 3. 16,3            | 3. 3,5            | 2. 33,5          | 1. 54,6           | 1. 17,2            | 0. 51,3             | 26 |
| 5  | 3. 16,2            | 3. 2,7            | 2. 32,3          | 1. 53,3           | 1. 16,1            | 0. 50,7             | 25 |
| 6  | 3. 16,1            | 3. 1,9            | 2. 31,1          | 1. 52,0           | 1. 15,0            | 0. 50,1             | 24 |
| 7  | 3. 15,9            | 3. 1,1            | 2. 29,9          | 1. 50,7           | 1. 13,9            | 0. 49,6             | 23 |
| 8  | 3. 15,7            | 3. 0,3            | 2. 28,6          | 1. 49,3           | 1. 12,9            | 0. 49,1             | 22 |
| 9  | 3. 15,5            | 2. 59,5           | 2. 27,4          | 1. 48,0           | 1. 11,8            | 0. 48,6             | 21 |
| 10 | 3. 15,3            | 2. 58,6           | 2. 26,2          | 1. 46,7           | 1. 10,8            | 0. 48,1             | 20 |
| 11 | 3. 15,1            | 2. 57,7           | 2. 24,9          | 1. 45,4           | 1. 9,8             | 0. 47,7             | 19 |
| 12 | 3. 14,8            | 2. 56,8           | 2. 23,6          | 1. 44,1           | 1. 8,8             | 0. 47,3             | 18 |
| 13 | 3. 14,5            | 2. 55,9           | 2. 22,4          | 1. 42,8           | 1. 7,8             | 0. 46,9             | 17 |
| 14 | 3. 14,2            | 2. 55,0           | 2. 21,1          | 1. 41,5           | 1. 6,8             | 0. 46,5             | 16 |
| 15 | 3. 13,9            | 2. 54,1           | 2. 19,8          | 1. 40,2           | 1. 5,9             | 0. 46,1             | 15 |
| 16 | 3. 13,5            | 2. 53,2           | 2. 18,5          | 1. 38,9           | 1. 5,0             | 0. 45,8             | 14 |
| 17 | 3. 13,1            | 2. 52,2           | 2. 17,2          | 1. 37,6           | 1. 4,1             | 0. 45,5             | 13 |
| 18 | 3. 12,7            | 2. 51,2           | 2. 15,9          | 1. 36,4           | 1. 3,2             | 0. 45,2             | 12 |
| 19 | 3. 12,3            | 2. 50,2           | 2. 14,6          | 1. 35,1           | 1. 2,3             | 0. 44,9             | 11 |
| 20 | 3. 11,9            | 2. 49,2           | 2. 13,3          | 1. 33,8           | 1. 1,4             | 0. 44,7             | 10 |
| 21 | 3. 11,4            | 2. 48,2           | 2. 12,0          | 1. 32,6           | 1. 0,5             | 9. 44,5             | 9  |
| 22 | 3. 10,9            | 2. 47,1           | 2. 10,7          | 1. 31,4           | 0. 59,7            | 0. 44,3             | 8  |
| 23 | 3. 10,4            | 2. 46,1           | 2. 9,3           | 1. 30,1           | 0. 58,9            | 0. 44,1             | 7  |
| 24 | 3. 9,9             | 2. 45,0           | 2. 8,0           | 1. 28,9           | 0. 58,1            | 0. 43,9             | 6  |
| 25 | 3. 9,3             | 2. 43,9           | 2. 6,7           | 1. 27,7           | 0. 57,3            | 0. 43,8             | 5  |
| 26 | 3. 8,7             | 2. 42,8           | 2. 5,4           | 1. 26,5           | 0. 56,5            | 0. 43,7             | 4  |
| 27 | 3. 8,1             | 2. 41,7           | 2. 4,0           | 1. 25,3           | 0. 55,8            | 0. 43,6             | 3  |
| 28 | 3. 7,5             | 2. 40,5           | 2. 2,7           | 1. 24,2           | 0. 55,1            | 0. 43,6             | 2  |
| 29 | 3. 6,9             | 2. 39,4           | 2. 1,3           | 1. 23,0           | 0. 54,4            | 0. 43,5             | 1  |
| 30 | 3. 6,3             | 2. 38,2           | 2. 0,0           | 1. 21,8           | 0. 53,7            | 0. 43,5             | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |

TABLE XVIII.

Equation XII.

ARG. XII = V + I = (☾ - ☉) - A + I  
= ☾ - ☉ - IX.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | 2,2                | 2,0               | 1,6              | 1,1               | 0,6                | 0,2                 | 30 |
| 1  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,1                 | 29 |
| 2  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,1                 | 28 |
| 3  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,1                 | 27 |
| 4  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,1                 | 26 |
| 5  | 2,2                | 2,0               | 1,6              | 1,0               | 0,5                | 0,1                 | 25 |
| 6  | 2,2                | 2,0               | 1,5              | 1,0               | 0,5                | 0,1                 | 24 |
| 7  | 2,2                | 2,0               | 1,5              | 1,0               | 0,4                | 0,1                 | 23 |
| 8  | 2,2                | 2,0               | 1,5              | 1,0               | 0,4                | 0,1                 | 22 |
| 9  | 2,2                | 2,0               | 1,5              | 1,0               | 0,4                | 0,1                 | 21 |
| 10 | 2,2                | 1,9               | 1,5              | 0,9               | 0,4                | 0,1                 | 20 |
| 11 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,1                 | 19 |
| 12 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,0                 | 18 |
| 13 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,0                 | 17 |
| 14 | 2,2                | 1,9               | 1,4              | 0,9               | 0,3                | 0,0                 | 16 |
| 15 | 2,2                | 1,9               | 1,4              | 0,8               | 0,3                | 0,0                 | 15 |
| 16 | 2,2                | 1,9               | 1,3              | 0,8               | 0,3                | 0,0                 | 14 |
| 17 | 2,2                | 1,9               | 1,3              | 0,8               | 0,3                | 0,0                 | 13 |
| 18 | 2,1                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 12 |
| 19 | 2,1                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 11 |
| 20 | 2,1                | 1,8               | 1,3              | 0,7               | 0,3                | 0,0                 | 10 |
| 21 | 2,1                | 1,8               | 1,2              | 0,7               | 0,3                | 0,0                 | 9  |
| 22 | 2,1                | 1,8               | 1,2              | 0,7               | 0,2                | 0,0                 | 8  |
| 23 | 2,1                | 1,8               | 1,2              | 0,7               | 0,2                | 0,0                 | 7  |
| 24 | 2,1                | 1,8               | 1,2              | 0,7               | 0,2                | 0,0                 | 6  |
| 25 | 2,1                | 1,7               | 1,2              | 0,6               | 0,2                | 0,0                 | 5  |
| 26 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 4  |
| 27 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 3  |
| 28 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 2  |
| 29 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 1  |
| 30 | 2,0                | 1,6               | 1,1              | 0,6               | 0,2                | 0,0                 | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



TABLE XIX.

Equation XIII.

$$\text{ARG. XIII} = \text{VI} + \text{I} = 2(\zeta - \odot) - \text{A} + \text{I} = 2(\zeta - \odot) - \text{IX}.$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | 5. 4,6             | 4. 47,9           | 4. 2,3           | 3. 0,0            | 1. 57,7            | 1. 12,1             | 30 |
| 1  | 5. 4,6             | 4. 46,8           | 4. 0,4           | 2. 57,8           | 1. 55,8            | 1. 11,0             | 29 |
| 2  | 5. 4,5             | 4. 45,7           | 3. 58,5          | 2. 55,6           | 1. 54,0            | 1. 10,0             | 28 |
| 3  | 5. 4,4             | 4. 44,5           | 3. 56,6          | 2. 53,5           | 1. 52,1            | 1. 9,0              | 27 |
| 4  | 5. 4,3             | 4. 43,3           | 3. 54,7          | 2. 51,3           | 1. 50,3            | 1. 8,0              | 26 |
| 5  | 5. 4,1             | 4. 42,1           | 3. 52,7          | 2. 49,1           | 1. 48,5            | 1. 7,1              | 25 |
| 6  | 5. 3,9             | 4. 40,8           | 3. 50,7          | 2. 47,0           | 1. 46,7            | 1. 6,2              | 24 |
| 7  | 5. 3,6             | 4. 39,5           | 3. 48,7          | 2. 44,8           | 1. 45,0            | 1. 5,3              | 23 |
| 8  | 5. 3,4             | 4. 38,1           | 3. 46,6          | 2. 42,7           | 1. 43,3            | 1. 4,5              | 22 |
| 9  | 3. 3,1             | 4. 36,8           | 3. 44,6          | 2. 40,5           | 1. 41,6            | 1. 3,7              | 21 |
| 10 | 5. 2,7             | 4. 35,4           | 3. 42,6          | 2. 38,4           | 1. 39,9            | 1. 2,9              | 20 |
| 11 | 5. 2,3             | 4. 34,0           | 3. 40,5          | 2. 36,3           | 1. 38,2            | 1. 2,2              | 19 |
| 12 | 5. 1,9             | 4. 32,5           | 3. 38,4          | 2. 34,2           | 1. 36,6            | 1. 1,5              | 18 |
| 13 | 5. 1,4             | 4. 31,1           | 3. 36,3          | 2. 32,0           | 1. 35,0            | 1. 0,9              | 17 |
| 14 | 5. 0,8             | 4. 29,6           | 3. 34,3          | 2. 29,9           | 1. 33,4            | 1. 0,3              | 16 |
| 15 | 5. 0,3             | 4. 28,1           | 3. 32,2          | 2. 27,8           | 1. 31,9            | 0. 59,7             | 15 |
| 16 | 4. 59,7            | 4. 26,6           | 3. 30,1          | 2. 25,7           | 1. 30,4            | 0. 59,2             | 14 |
| 17 | 4. 59,1            | 4. 25,0           | 3. 28,0          | 2. 23,7           | 1. 28,9            | 0. 58,6             | 13 |
| 18 | 4. 58,5            | 4. 23,4           | 3. 25,8          | 2. 21,6           | 1. 27,5            | 0. 58,1             | 12 |
| 19 | 4. 57,8            | 4. 21,8           | 3. 23,7          | 2. 19,5           | 1. 26,0            | 0. 57,7             | 11 |
| 20 | 4. 57,1            | 4. 20,1           | 3. 21,6          | 2. 17,4           | 1. 24,6            | 0. 57,3             | 10 |
| 21 | 4. 56,3            | 4. 18,4           | 3. 19,5          | 2. 15,4           | 1. 23,2            | 0. 56,9             | 9  |
| 22 | 4. 55,5            | 4. 16,7           | 3. 17,4          | 2. 13,4           | 1. 21,9            | 0. 56,6             | 8  |
| 23 | 4. 54,7            | 4. 15,0           | 3. 15,2          | 2. 11,3           | 1. 20,5            | 0. 56,4             | 7  |
| 24 | 4. 53,8            | 4. 13,3           | 3. 13,0          | 2. 9,3            | 1. 19,2            | 0. 56,1             | 6  |
| 25 | 4. 52,9            | 4. 11,5           | 3. 10,9          | 2. 7,3            | 1. 17,9            | 0. 55,9             | 5  |
| 26 | 4. 52,0            | 4. 9,7            | 3. 8,7           | 2. 5,3            | 1. 16,7            | 0. 55,7             | 4  |
| 27 | 4. 51,1            | 4. 7,9            | 3. 6,5           | 2. 3,4            | 1. 15,5            | 0. 55,6             | 3  |
| 28 | 4. 50,0            | 4. 6,0            | 3. 4,4           | 2. 1,5            | 1. 14,3            | 0. 55,5             | 2  |
| 29 | 4. 49,0            | 4. 4,2            | 3. 2,2           | 1. 59,6           | 1. 13,2            | 0. 55,4             | 1  |
| 30 | 4. 47,9            | 4. 2,3            | 3. 0,0           | 1. 57,7           | 1. 12,1            | 0. 55,4             | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |

TABLE XX.

Equation XIV.

$$\text{ARG. XIV} = \text{VI} - \text{I} = 2(\zeta - \odot) - \text{A} - \text{I}.$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | 1. 47,6            | 1. 41,2           | 1. 23,8          | 1. 0,0            | 0. 36,2            | 0. 18,8             | 30 |
| 1  | 1. 47,6            | 1. 40,8           | 1. 23,1          | 0. 59,2           | 0. 35,5            | 0. 18,4             | 29 |
| 2  | 1. 47,6            | 1. 40,4           | 1. 22,3          | 0. 58,4           | 0. 34,8            | 0. 18,0             | 28 |
| 3  | 1. 47,5            | 1. 39,9           | 1. 21,6          | 0. 57,5           | 0. 34,1            | 0. 17,6             | 27 |
| 4  | 1. 47,5            | 1. 39,5           | 1. 20,8          | 0. 56,7           | 0. 33,4            | 0. 17,3             | 26 |
| 5  | 1. 47,4            | 1. 39,0           | 1. 20,1          | 0. 55,9           | 0. 32,7            | 0. 16,9             | 25 |
| 6  | 1. 47,3            | 1. 38,5           | 1. 19,3          | 0. 55,1           | 0. 32,0            | 0. 16,6             | 24 |
| 7  | 1. 47,2            | 1. 38,0           | 1. 18,6          | 0. 54,2           | 0. 31,4            | 0. 16,2             | 23 |
| 8  | 1. 47,1            | 1. 37,5           | 1. 17,8          | 0. 53,4           | 0. 30,7            | 0. 15,9             | 22 |
| 9  | 1. 47,0            | 1. 37,0           | 1. 17,1          | 0. 52,5           | 0. 30,0            | 0. 15,6             | 21 |
| 10 | 1. 46,9            | 1. 36,5           | 1. 16,3          | 0. 51,7           | 0. 29,4            | 0. 15,3             | 20 |
| 11 | 1. 46,7            | 1. 35,9           | 1. 15,5          | 0. 50,9           | 0. 28,8            | 0. 15,0             | 19 |
| 12 | 1. 46,6            | 1. 35,4           | 1. 14,7          | 0. 50,1           | 0. 28,2            | 0. 14,8             | 18 |
| 13 | 1. 46,4            | 1. 34,8           | 1. 13,9          | 0. 49,3           | 0. 27,5            | 0. 14,5             | 17 |
| 14 | 1. 46,2            | 1. 34,3           | 1. 13,1          | 0. 48,5           | 0. 26,9            | 0. 14,2             | 16 |
| 15 | 1. 46,0            | 1. 33,7           | 1. 12,3          | 0. 47,7           | 0. 26,3            | 0. 14,0             | 15 |
| 16 | 1. 45,8            | 1. 33,1           | 1. 11,5          | 0. 46,9           | 0. 25,7            | 0. 13,8             | 14 |
| 17 | 1. 45,5            | 1. 32,5           | 1. 10,7          | 0. 46,1           | 0. 25,2            | 0. 13,6             | 13 |
| 18 | 1. 45,2            | 1. 31,8           | 1. 9,9           | 0. 45,3           | 0. 24,6            | 0. 13,4             | 12 |
| 19 | 1. 45,0            | 1. 31,2           | 1. 9,1           | 0. 44,5           | 0. 24,1            | 0. 13,3             | 11 |
| 20 | 1. 44,7            | 1. 30,6           | 1. 8,3           | 0. 43,7           | 0. 23,5            | 0. 13,1             | 10 |
| 21 | 1. 44,4            | 1. 30,0           | 1. 7,5           | 0. 42,9           | 0. 23,0            | 0. 13,0             | 9  |
| 22 | 1. 44,1            | 1. 29,3           | 1. 6,6           | 0. 42,2           | 0. 22,5            | 0. 12,9             | 8  |
| 23 | 1. 43,8            | 1. 28,6           | 1. 5,8           | 0. 41,4           | 0. 22,0            | 0. 12,8             | 7  |
| 24 | 1. 43,4            | 1. 28,0           | 1. 4,9           | 0. 40,7           | 0. 21,5            | 0. 12,7             | 6  |
| 25 | 1. 43,1            | 1. 27,3           | 1. 4,1           | 0. 39,9           | 0. 21,0            | 0. 12,6             | 5  |
| 26 | 1. 42,7            | 1. 26,6           | 1. 3,3           | 0. 39,2           | 0. 20,5            | 0. 12,5             | 4  |
| 27 | 1. 42,4            | 1. 25,9           | 1. 2,5           | 0. 38,4           | 0. 20,1            | 0. 12,5             | 3  |
| 28 | 1. 42,0            | 1. 25,2           | 1. 1,6           | 0. 37,7           | 0. 19,6            | 0. 12,4             | 2  |
| 29 | 1. 41,6            | 1. 24,5           | 1. 0,8           | 0. 36,9           | 0. 19,2            | 0. 12,4             | 1  |
| 30 | 1. 41,2            | 1. 23,8           | 1. 0,0           | 0. 36,2           | 0. 18,8            | 0. 12,4             | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



TABLE XXI.

Equation XV.

$$\text{ARG. XV} = \text{VII} + \text{I} = 2(\zeta - \odot) + \text{A} + \text{I}.$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 0  | 4,5                | 4,2               | 3,4              | 2,3               | 1,2                | 0,4                 | 30 |
| 1  | 4,5                | 4,1               | 3,4              | 2,3               | 1,2                | 0,3                 | 29 |
| 2  | 4,5                | 4,1               | 3,3              | 2,3               | 1,2                | 0,3                 | 28 |
| 3  | 4,5                | 4,1               | 3,3              | 2,2               | 1,1                | 0,3                 | 27 |
| 4  | 4,5                | 4,1               | 3,3              | 2,2               | 1,1                | 0,3                 | 26 |
| 5  | 4,5                | 4,1               | 3,2              | 2,1               | 1,0                | 0,3                 | 25 |
| 6  | 4,5                | 4,0               | 3,2              | 2,1               | 1,0                | 0,3                 | 24 |
| 7  | 4,5                | 4,0               | 3,2              | 2,1               | 1,0                | 0,2                 | 23 |
| 8  | 4,5                | 4,0               | 3,1              | 2,0               | 0,9                | 0,2                 | 22 |
| 9  | 4,5                | 4,0               | 3,1              | 2,0               | 0,9                | 0,2                 | 21 |
| 10 | 4,5                | 4,0               | 3,0              | 1,9               | 0,9                | 0,2                 | 20 |
| 11 | 4,5                | 3,9               | 3,0              | 1,9               | 0,9                | 0,2                 | 19 |
| 12 | 4,5                | 3,9               | 3,0              | 1,9               | 0,8                | 0,2                 | 18 |
| 13 | 4,5                | 3,9               | 2,9              | 1,8               | 0,8                | 0,2                 | 17 |
| 14 | 4,5                | 3,9               | 2,9              | 1,8               | 0,8                | 0,2                 | 16 |
| 15 | 4,4                | 3,9               | 2,9              | 1,7               | 0,7                | 0,2                 | 15 |
| 16 | 4,4                | 3,8               | 2,8              | 1,7               | 0,7                | 0,1                 | 14 |
| 17 | 4,4                | 3,8               | 2,8              | 1,7               | 0,7                | 0,1                 | 13 |
| 18 | 4,4                | 3,8               | 2,8              | 1,7               | 0,7                | 0,1                 | 12 |
| 19 | 4,4                | 3,8               | 2,7              | 1,6               | 0,6                | 0,1                 | 11 |
| 20 | 4,4                | 3,7               | 2,7              | 1,6               | 0,6                | 0,1                 | 10 |
| 21 | 4,4                | 3,7               | 2,7              | 1,6               | 0,6                | 0,1                 | 9  |
| 22 | 4,4                | 3,7               | 2,6              | 1,5               | 0,6                | 0,1                 | 8  |
| 23 | 4,4                | 3,7               | 2,6              | 1,5               | 0,5                | 0,1                 | 7  |
| 24 | 4,4                | 3,6               | 2,5              | 1,5               | 0,5                | 0,1                 | 6  |
| 25 | 4,3                | 3,6               | 2,5              | 1,4               | 0,5                | 0,1                 | 5  |
| 26 | 4,3                | 3,6               | 2,5              | 1,4               | 0,5                | 0,0                 | 4  |
| 27 | 4,3                | 3,5               | 2,4              | 1,4               | 0,4                | 0,0                 | 3  |
| 28 | 4,3                | 3,5               | 2,4              | 1,3               | 0,4                | 0,0                 | 2  |
| 29 | 4,3                | 3,5               | 2,4              | 1,3               | 0,4                | 0,0                 | 1  |
| 30 | 4,2                | 3,4               | 2,3              | 1,2               | 0,4                | 0,0                 | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |

TABLE XXII.

Equation XVI.

$$\text{ARG. XVI} = \text{VII} - \text{I} = 2(\zeta - \odot) + \text{A} - \text{I}.$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 0  | 2,6                | 2,4               | 1,9              | 1,3               | 0,7                | 0,2                 | 30 |
| 1  | 2,6                | 2,4               | 1,8              | 1,3               | 0,7                | 0,2                 | 29 |
| 2  | 2,6                | 2,4               | 1,8              | 1,3               | 0,7                | 0,1                 | 28 |
| 3  | 2,6                | 2,4               | 1,8              | 1,3               | 0,7                | 0,1                 | 27 |
| 4  | 2,6                | 2,3               | 1,8              | 1,2               | 0,7                | 0,1                 | 26 |
| 5  | 2,6                | 2,3               | 1,8              | 1,2               | 0,6                | 0,1                 | 25 |
| 6  | 2,6                | 2,3               | 1,7              | 1,2               | 0,6                | 0,1                 | 24 |
| 7  | 2,6                | 2,3               | 1,7              | 1,2               | 0,6                | 0,1                 | 23 |
| 8  | 2,6                | 2,3               | 1,7              | 1,2               | 0,6                | 0,1                 | 22 |
| 9  | 2,6                | 2,3               | 1,7              | 1,2               | 0,6                | 0,1                 | 21 |
| 10 | 2,6                | 2,3               | 1,7              | 1,1               | 0,5                | 0,1                 | 20 |
| 11 | 2,6                | 2,2               | 1,6              | 1,1               | 0,5                | 0,1                 | 19 |
| 12 | 2,6                | 2,2               | 1,6              | 1,1               | 0,5                | 0,0                 | 18 |
| 13 | 2,6                | 2,2               | 1,6              | 1,1               | 0,5                | 0,0                 | 17 |
| 14 | 2,6                | 2,2               | 1,6              | 1,1               | 0,5                | 0,0                 | 16 |
| 15 | 2,6                | 2,2               | 1,6              | 1,0               | 0,4                | 0,0                 | 15 |
| 16 | 2,5                | 2,1               | 1,5              | 1,0               | 0,4                | 0,0                 | 14 |
| 17 | 2,5                | 2,1               | 1,5              | 1,0               | 0,4                | 0,0                 | 13 |
| 18 | 2,5                | 2,1               | 1,5              | 1,0               | 0,4                | 0,0                 | 12 |
| 19 | 2,5                | 2,1               | 1,5              | 1,0               | 0,4                | 0,0                 | 11 |
| 20 | 2,5                | 2,1               | 1,5              | 0,9               | 0,3                | 0,0                 | 10 |
| 21 | 2,5                | 2,0               | 1,5              | 0,9               | 0,3                | 0,0                 | 9  |
| 22 | 2,5                | 2,0               | 1,4              | 0,9               | 0,3                | 0,0                 | 8  |
| 23 | 2,5                | 2,0               | 1,4              | 0,9               | 0,3                | 0,0                 | 7  |
| 24 | 2,5                | 2,0               | 1,4              | 0,9               | 0,3                | 0,0                 | 6  |
| 25 | 2,5                | 2,0               | 1,4              | 0,8               | 0,3                | 0,0                 | 5  |
| 26 | 2,4                | 1,9               | 1,4              | 0,8               | 0,2                | 0,0                 | 4  |
| 27 | 2,4                | 1,9               | 1,4              | 0,8               | 0,2                | 0,0                 | 3  |
| 28 | 2,4                | 1,9               | 1,3              | 0,8               | 0,2                | 0,0                 | 2  |
| 29 | 2,4                | 1,9               | 1,3              | 0,8               | 0,2                | 0,0                 | 1  |
| 30 | 2,4                | 1,9               | 1,3              | 0,7               | 0,2                | 0,0                 | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



TABLE XXIII.

Equation XVII.

ARG. XVII. Supplement of the Node.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 3",2               | 4",0              | 6",6             | 10",0             | 13",4              | 16",0               | 30° |
| 1  | 3,2                | 4,1               | 6,7              | 10,1              | 13,6               | 16,0                | 29  |
| 2  | 3,2                | 4,2               | 6,8              | 10,2              | 13,7               | 16,1                | 28  |
| 3  | 3,2                | 4,2               | 6,9              | 10,4              | 13,8               | 16,1                | 27  |
| 4  | 3,2                | 4,3               | 7,0              | 10,5              | 13,9               | 16,2                | 26  |
| 5  | 3,2                | 4,4               | 7,1              | 10,6              | 14,0               | 16,2                | 25  |
| 6  | 3,2                | 4,5               | 7,2              | 10,7              | 14,1               | 16,3                | 24  |
| 7  | 3,3                | 4,5               | 7,3              | 10,8              | 14,1               | 16,3                | 23  |
| 8  | 3,3                | 4,6               | 7,4              | 11,0              | 14,2               | 16,4                | 22  |
| 9  | 3,3                | 4,6               | 7,5              | 11,1              | 14,3               | 16,4                | 21  |
| 10 | 3,3                | 4,7               | 7,6              | 11,2              | 14,4               | 16,5                | 20  |
| 11 | 3,3                | 4,8               | 7,8              | 11,3              | 14,5               | 16,5                | 19  |
| 12 | 3,4                | 4,9               | 7,9              | 11,4              | 14,6               | 16,5                | 18  |
| 13 | 3,4                | 5,0               | 8,0              | 11,5              | 14,7               | 16,5                | 17  |
| 14 | 3,4                | 5,0               | 8,1              | 11,7              | 14,8               | 16,5                | 16  |
| 15 | 3,4                | 5,1               | 8,2              | 11,8              | 14,9               | 16,6                | 15  |
| 16 | 3,5                | 5,2               | 8,3              | 11,9              | 15,0               | 16,6                | 14  |
| 17 | 3,5                | 5,3               | 8,4              | 12,0              | 15,0               | 16,6                | 13  |
| 18 | 3,5                | 5,4               | 8,6              | 12,1              | 15,1               | 16,6                | 12  |
| 19 | 3,5                | 5,5               | 8,7              | 12,2              | 15,2               | 16,6                | 11  |
| 20 | 3,5                | 5,6               | 8,8              | 12,4              | 15,3               | 16,7                | 10  |
| 21 | 3,6                | 5,7               | 8,9              | 12,5              | 15,4               | 16,7                | 9   |
| 22 | 3,6                | 5,8               | 9,1              | 12,6              | 15,4               | 16,7                | 8   |
| 23 | 3,7                | 5,9               | 9,2              | 12,7              | 15,5               | 16,7                | 7   |
| 24 | 3,7                | 5,9               | 9,3              | 12,8              | 15,6               | 16,8                | 6   |
| 25 | 3,8                | 6,0               | 9,4              | 12,9              | 15,7               | 16,8                | 5   |
| 26 | 3,8                | 6,1               | 9,5              | 13,0              | 15,7               | 16,8                | 4   |
| 27 | 3,9                | 6,2               | 9,6              | 13,1              | 15,8               | 16,8                | 3   |
| 28 | 3,9                | 6,3               | 9,7              | 13,2              | 15,8               | 16,8                | 2   |
| 29 | 4,0                | 6,4               | 9,9              | 13,3              | 15,9               | 16,8                | 1   |
| 30 | 4,0                | 6,6               | 10,0             | 13,4              | 16,0               | 16,8                | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | 0 <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |

TABLE XXIV.

Equation XVIII.

ARG. XVIII =  $\odot + N = \odot + XVII.$ 

|    | O. VI <sup>s</sup> . | I. VII <sup>s</sup> . | II. VIII <sup>s</sup> . | III. IX <sup>s</sup> . | IV <sup>s</sup> . X <sup>s</sup> . | V <sup>s</sup> . XI <sup>s</sup> . |
|----|----------------------|-----------------------|-------------------------|------------------------|------------------------------------|------------------------------------|
| 0° | 2'. 0",0             | 1'. 5",9              | 1'. 5",9                | 2'. 0",0               | 2'. 54",1                          | 2'. 54",1                          |
| 1  | 1. 57,8              | 1. 4,8                | 1. 7,0                  | 2. 2,2                 | 2. 55,2                            | 2. 53,0                            |
| 2  | 1. 55,6              | 1. 3,8                | 1. 8,2                  | 2. 4,4                 | 2. 56,2                            | 2. 51,9                            |
| 3  | 1. 53,5              | 1. 2,9                | 1. 9,4                  | 2. 6,5                 | 2. 57,1                            | 2. 50,6                            |
| 4  | 1. 51,3              | 1. 2,1                | 1. 10,7                 | 2. 8,7                 | 2. 57,9                            | 2. 49,3                            |
| 5  | 1. 49,2              | 1. 1,3                | 1. 12,1                 | 2. 10,8                | 2. 58,7                            | 2. 47,9                            |
| 6  | 1. 47,0              | 1. 0,6                | 1. 13,5                 | 2. 13,0                | 2. 59,4                            | 2. 46,5                            |
| 7  | 1. 44,9              | 0. 59,9               | 1. 15,0                 | 2. 15,1                | 3. 0,1                             | 2. 45,0                            |
| 8  | 1. 42,8              | 0. 59,4               | 1. 16,5                 | 2. 17,2                | 3. 0,7                             | 2. 43,5                            |
| 9  | 1. 40,7              | 0. 58,9               | 1. 18,1                 | 2. 19,3                | 3. 1,1                             | 2. 41,9                            |
| 10 | 1. 38,6              | 0. 58,5               | 1. 19,8                 | 2. 21,4                | 3. 1,5                             | 2. 40,2                            |
| 11 | 1. 36,5              | 0. 58,1               | 1. 21,5                 | 2. 23,5                | 3. 1,9                             | 2. 38,5                            |
| 12 | 1. 34,5              | 0. 57,8               | 1. 23,3                 | 2. 25,5                | 3. 2,2                             | 2. 36,7                            |
| 13 | 1. 32,5              | 0. 57,6               | 1. 25,1                 | 2. 27,5                | 3. 2,4                             | 2. 34,9                            |
| 14 | 1. 30,6              | 0. 57,5               | 1. 26,9                 | 2. 29,4                | 3. 2,5                             | 2. 33,1                            |
| 15 | 1. 28,8              | 0. 57,5               | 1. 28,8                 | 2. 31,2                | 3. 2,5                             | 2. 31,2                            |
| 16 | 1. 26,9              | 0. 57,5               | 1. 30,6                 | 2. 33,1                | 3. 2,5                             | 2. 29,4                            |
| 17 | 1. 25,1              | 0. 57,6               | 1. 32,5                 | 2. 35,0                | 3. 2,4                             | 2. 27,5                            |
| 18 | 1. 23,3              | 0. 57,8               | 1. 34,5                 | 2. 36,7                | 3. 2,2                             | 2. 25,5                            |
| 19 | 1. 21,5              | 0. 58,1               | 1. 36,5                 | 2. 38,5                | 3. 1,9                             | 2. 23,5                            |
| 20 | 1. 19,8              | 0. 58,5               | 1. 38,6                 | 2. 40,2                | 3. 1,5                             | 2. 21,4                            |
| 21 | 1. 18,1              | 0. 58,9               | 1. 40,7                 | 2. 41,9                | 3. 1,1                             | 2. 19,3                            |
| 22 | 1. 16,5              | 0. 59,4               | 1. 42,8                 | 2. 43,5                | 3. 0,6                             | 2. 17,2                            |
| 23 | 1. 15,0              | 0. 59,9               | 1. 44,9                 | 2. 45,0                | 3. 0,1                             | 2. 15,1                            |
| 24 | 1. 13,5              | 1. 0,6                | 1. 47,0                 | 2. 46,5                | 2. 59,4                            | 2. 13,0                            |
| 25 | 1. 12,1              | 1. 1,3                | 1. 49,2                 | 2. 47,9                | 2. 58,7                            | 2. 10,8                            |
| 26 | 1. 10,7              | 1. 2,1                | 1. 51,3                 | 2. 49,3                | 2. 57,9                            | 2. 8,7                             |
| 27 | 1. 9,4               | 1. 2,9                | 1. 53,5                 | 2. 50,6                | 2. 57,1                            | 2. 6,5                             |
| 28 | 1. 8,1               | 1. 3,8                | 1. 55,6                 | 2. 51,9                | 2. 56,2                            | 2. 4,4                             |
| 29 | 1. 7,0               | 1. 4,8                | 1. 57,8                 | 2. 53,0                | 2. 55,2                            | 2. 2,2                             |
| 30 | 1. 5,9               | 1. 5,9                | 2. 0,0                  | 2. 54,1                | 2. 54,1                            | 2. 0,0                             |



TABLE XXV.

Equation XIX.

ARGUMENT XIX = XVIII + V =  $\zeta$  + N - A.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 10",0              | 4",5              | 4",5             | 10",0             | 15",5              | 15",5               | 30° |
| 1  | 9,8                | 4,4               | 4,6              | 10,2              | 15,6               | 15,4                | 29  |
| 2  | 9,6                | 4,3               | 4,7              | 10,4              | 15,7               | 15,3                | 28  |
| 3  | 9,3                | 4,2               | 4,8              | 10,7              | 15,8               | 15,2                | 27  |
| 4  | 9,1                | 4,1               | 5,0              | 10,9              | 15,9               | 15,0                | 26  |
| 5  | 8,9                | 4,0               | 5,1              | 11,1              | 16,0               | 14,9                | 25  |
| 6  | 8,7                | 3,9               | 5,3              | 11,3              | 16,1               | 14,7                | 24  |
| 7  | 8,5                | 3,9               | 5,4              | 11,5              | 16,1               | 14,5                | 23  |
| 8  | 8,2                | 3,8               | 5,6              | 11,8              | 16,2               | 14,4                | 22  |
| 9  | 8,0                | 3,8               | 5,7              | 12,0              | 16,2               | 14,3                | 21  |
| 10 | 7,8                | 3,7               | 5,9              | 12,2              | 16,3               | 14,1                | 20  |
| 11 | 7,6                | 3,7               | 6,1              | 12,4              | 16,3               | 13,9                | 19  |
| 12 | 7,4                | 3,7               | 6,3              | 12,6              | 16,3               | 13,7                | 18  |
| 13 | 7,2                | 3,6               | 6,4              | 12,8              | 16,4               | 13,6                | 17  |
| 14 | 7,0                | 3,6               | 6,6              | 13,0              | 16,4               | 13,4                | 16  |
| 15 | 6,8                | 3,6               | 6,8              | 13,2              | 16,4               | 13,2                | 15  |
| 16 | 6,6                | 3,6               | 7,0              | 13,4              | 16,4               | 13,0                | 14  |
| 17 | 6,4                | 3,6               | 7,2              | 13,6              | 16,4               | 12,8                | 13  |
| 18 | 6,3                | 3,7               | 7,4              | 13,7              | 16,3               | 12,6                | 12  |
| 19 | 6,1                | 3,7               | 7,6              | 13,9              | 16,3               | 12,4                | 11  |
| 20 | 5,9                | 3,7               | 7,8              | 14,1              | 16,3               | 12,2                | 10  |
| 21 | 5,7                | 3,8               | 8,0              | 14,3              | 16,2               | 12,0                | 9   |
| 22 | 5,6                | 3,8               | 8,2              | 14,4              | 16,2               | 11,8                | 8   |
| 23 | 5,4                | 3,9               | 8,5              | 14,6              | 16,1               | 11,5                | 7   |
| 24 | 5,3                | 3,9               | 8,7              | 14,7              | 16,1               | 11,3                | 6   |
| 25 | 5,1                | 4,0               | 8,9              | 14,9              | 16,0               | 11,1                | 5   |
| 26 | 5,0                | 4,1               | 9,1              | 15,0              | 15,9               | 10,9                | 4   |
| 27 | 4,8                | 4,2               | 9,3              | 15,2              | 15,8               | 10,7                | 3   |
| 28 | 4,7                | 4,3               | 9,5              | 15,3              | 15,7               | 10,4                | 2   |
| 29 | 4,6                | 4,4               | 9,8              | 15,4              | 15,6               | 10,2                | 1   |
| 30 | 4,5                | 4,5               | 10,0             | 15,5              | 15,5               | 10,0                | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |

TABLE XXVI.

Equation XX.

ARG. XX = VI + 2 ( $\zeta$  -  $\odot$ ) = 4 ( $\zeta$  -  $\odot$ ) - A.

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 9",4               | 10",8             | 14",7            | 20",0             | 25",3              | 29",2               | 30° |
| 1  | 9,4                | 10,9              | 14,9             | 20,2              | 25,5               | 29,3                | 29  |
| 2  | 9,4                | 11,0              | 15,0             | 20,4              | 25,6               | 29,4                | 28  |
| 3  | 9,4                | 11,1              | 15,2             | 20,5              | 25,8               | 29,4                | 27  |
| 4  | 9,4                | 11,2              | 15,4             | 20,7              | 25,9               | 29,5                | 26  |
| 5  | 9,4                | 11,3              | 15,5             | 20,9              | 26,1               | 29,6                | 25  |
| 6  | 9,5                | 11,4              | 15,7             | 21,1              | 26,2               | 29,7                | 24  |
| 7  | 9,5                | 11,5              | 15,9             | 21,3              | 26,4               | 29,7                | 23  |
| 8  | 9,5                | 11,7              | 16,0             | 21,5              | 26,5               | 29,8                | 22  |
| 9  | 9,5                | 11,8              | 16,2             | 21,7              | 26,7               | 29,9                | 21  |
| 10 | 9,6                | 11,9              | 16,4             | 21,8              | 26,8               | 30,0                | 20  |
| 11 | 9,6                | 12,0              | 16,6             | 22,0              | 26,9               | 30,0                | 19  |
| 12 | 9,6                | 12,1              | 16,7             | 22,2              | 27,1               | 30,1                | 18  |
| 13 | 9,7                | 12,3              | 16,9             | 22,4              | 27,2               | 30,1                | 17  |
| 14 | 9,7                | 12,4              | 17,1             | 22,6              | 27,4               | 30,2                | 16  |
| 15 | 9,8                | 12,5              | 17,3             | 22,7              | 27,5               | 30,2                | 15  |
| 16 | 9,8                | 12,6              | 17,4             | 22,9              | 27,6               | 30,3                | 14  |
| 17 | 9,9                | 12,8              | 17,6             | 23,1              | 27,7               | 30,3                | 13  |
| 18 | 9,9                | 12,9              | 17,8             | 23,3              | 27,9               | 30,4                | 12  |
| 19 | 10,0               | 13,1              | 18,1             | 23,4              | 28,0               | 30,4                | 11  |
| 20 | 10,0               | 13,2              | 18,2             | 23,6              | 28,1               | 30,4                | 10  |
| 21 | 10,1               | 13,3              | 18,3             | 23,8              | 28,2               | 30,5                | 9   |
| 22 | 10,2               | 13,5              | 18,5             | 24,0              | 28,3               | 30,5                | 8   |
| 23 | 10,3               | 13,6              | 18,7             | 24,1              | 28,5               | 30,5                | 7   |
| 24 | 10,3               | 13,8              | 18,9             | 24,3              | 28,6               | 30,5                | 6   |
| 25 | 10,4               | 13,9              | 19,1             | 24,5              | 28,7               | 30,6                | 5   |
| 26 | 10,5               | 14,1              | 19,3             | 24,7              | 28,8               | 30,6                | 4   |
| 27 | 10,6               | 14,2              | 19,5             | 24,8              | 28,9               | 30,6                | 3   |
| 28 | 10,6               | 14,4              | 19,6             | 25,0              | 29,0               | 30,6                | 2   |
| 29 | 10,7               | 14,5              | 19,8             | 25,1              | 29,1               | 30,6                | 1   |
| 30 | 10,8               | 14,7              | 20,0             | 25,3              | 29,2               | 30,6                | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |



TABLE XXVII.

Equation XXI.

$$\text{ARG. XXI.} = \text{XX.} - 2A = 4 (\odot - \ominus) - 3A.$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 2",2               | 2",0              | 1",6             | 1",1              | 0",6               | 0",2                | 30° |
| 1  | 2,2                | 2,0               | 1,6              | 1,1               | 0,6                | 0,2                 | 29  |
| 2  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,2                 | 28  |
| 3  | 2,2                | 2,0               | 1,6              | 1,1               | 0,5                | 0,1                 | 27  |
| 4  | 2,2                | 2,0               | 1,6              | 1,0               | 0,5                | 0,1                 | 26  |
| 5  | 2,2                | 2,0               | 1,6              | 1,0               | 0,5                | 0,1                 | 25  |
| 6  | 2,2                | 2,0               | 1,5              | 1,0               | 0,5                | 0,1                 | 24  |
| 7  | 2,2                | 1,9               | 1,5              | 1,0               | 0,5                | 0,1                 | 23  |
| 8  | 2,2                | 1,9               | 1,5              | 1,0               | 0,5                | 0,1                 | 22  |
| 9  | 2,2                | 1,9               | 1,5              | 1,0               | 0,5                | 0,1                 | 21  |
| 10 | 2,2                | 1,9               | 1,5              | 0,9               | 0,4                | 0,1                 | 20  |
| 11 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,1                 | 19  |
| 12 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,1                 | 18  |
| 13 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,1                 | 17  |
| 14 | 2,2                | 1,9               | 1,4              | 0,9               | 0,4                | 0,0                 | 16  |
| 15 | 2,2                | 1,8               | 1,4              | 0,8               | 0,4                | 0,0                 | 15  |
| 16 | 2,2                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 14  |
| 17 | 2,2                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 13  |
| 18 | 2,2                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 12  |
| 19 | 2,2                | 1,8               | 1,3              | 0,8               | 0,3                | 0,0                 | 11  |
| 20 | 2,2                | 1,8               | 1,3              | 0,7               | 0,3                | 0,0                 | 10  |
| 21 | 2,1                | 1,8               | 1,2              | 0,7               | 0,3                | 0,0                 | 9   |
| 22 | 2,1                | 1,8               | 1,2              | 0,7               | 0,3                | 0,0                 | 8   |
| 23 | 2,1                | 1,8               | 1,2              | 0,7               | 0,3                | 0,0                 | 7   |
| 24 | 2,1                | 1,7               | 1,2              | 0,7               | 0,2                | 0,0                 | 6   |
| 25 | 2,1                | 1,7               | 1,2              | 0,6               | 0,2                | 0,0                 | 5   |
| 26 | 2,1                | 1,7               | 1,2              | 0,6               | 0,2                | 0,0                 | 4   |
| 27 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 3   |
| 28 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 2   |
| 29 | 2,1                | 1,7               | 1,1              | 0,6               | 0,2                | 0,0                 | 1   |
| 30 | 2,0                | 1,6               | 1,1              | 0,6               | 0,2                | 0,0                 | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |

TABLE XXVIII.

Equation XXII.

$$\begin{aligned} \text{ARG. XXII.} &= 2A - X \pm 2 (\odot - \ominus) + 2A \\ &+ \text{Arg. I.} = 2A - 2 (\odot - \ominus) - \text{Arg. I.} \end{aligned}$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 0",0               | 0",2              | 0",6             | 1",2              | 1",8               | 2",2                | 30° |
| 1  | 0,0                | 0,2               | 0,7              | 1,2               | 1,8                | 2,2                 | 29  |
| 2  | 0,0                | 0,2               | 0,7              | 1,2               | 1,8                | 2,2                 | 28  |
| 3  | 0,0                | 0,2               | 0,7              | 1,2               | 1,8                | 2,3                 | 27  |
| 4  | 0,0                | 0,2               | 0,7              | 1,3               | 1,8                | 2,3                 | 26  |
| 5  | 0,0                | 0,2               | 0,7              | 1,3               | 1,9                | 2,3                 | 25  |
| 6  | 0,0                | 0,2               | 0,8              | 1,3               | 1,9                | 2,3                 | 24  |
| 7  | 0,0                | 0,3               | 0,8              | 1,3               | 1,9                | 2,3                 | 23  |
| 8  | 0,0                | 0,3               | 0,8              | 1,3               | 1,9                | 2,3                 | 22  |
| 9  | 0,0                | 0,3               | 0,8              | 1,3               | 1,9                | 2,3                 | 21  |
| 10 | 0,0                | 0,3               | 0,8              | 1,4               | 2,0                | 2,3                 | 20  |
| 11 | 0,0                | 0,3               | 0,9              | 1,4               | 2,0                | 2,3                 | 19  |
| 12 | 0,0                | 0,3               | 0,9              | 1,4               | 2,0                | 2,3                 | 18  |
| 13 | 0,0                | 0,3               | 0,9              | 1,4               | 2,0                | 2,3                 | 17  |
| 14 | 0,0                | 0,4               | 0,9              | 1,4               | 2,0                | 2,4                 | 16  |
| 15 | 0,0                | 0,4               | 0,9              | 1,5               | 2,0                | 2,4                 | 15  |
| 16 | 0,0                | 0,4               | 1,0              | 1,5               | 2,0                | 2,4                 | 14  |
| 17 | 0,0                | 0,4               | 1,0              | 1,5               | 2,1                | 2,4                 | 13  |
| 18 | 0,1                | 0,4               | 1,0              | 1,5               | 2,1                | 2,4                 | 12  |
| 19 | 0,1                | 0,4               | 1,0              | 1,5               | 2,1                | 2,4                 | 11  |
| 20 | 0,1                | 0,4               | 1,0              | 1,6               | 2,1                | 2,4                 | 10  |
| 21 | 0,1                | 0,5               | 1,1              | 1,6               | 2,1                | 2,4                 | 9   |
| 22 | 0,1                | 0,5               | 1,1              | 1,6               | 2,1                | 2,4                 | 8   |
| 23 | 0,1                | 0,5               | 1,1              | 1,6               | 2,1                | 2,4                 | 7   |
| 24 | 0,1                | 0,5               | 1,1              | 1,6               | 2,2                | 2,4                 | 6   |
| 25 | 0,1                | 0,5               | 1,1              | 1,7               | 2,2                | 2,4                 | 5   |
| 26 | 0,1                | 0,6               | 1,1              | 1,7               | 2,2                | 2,4                 | 4   |
| 27 | 0,1                | 0,6               | 1,2              | 1,7               | 2,2                | 2,4                 | 3   |
| 28 | 0,2                | 0,6               | 1,2              | 1,7               | 2,2                | 2,4                 | 2   |
| 29 | 0,2                | 0,6               | 1,2              | 1,7               | 2,2                | 2,4                 | 1   |
| 30 | 0,2                | 0,6               | 1,2              | 1,8               | 2,2                | 2,4                 | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |



TABLE XXIX.

Equation XXIII.

$$\text{ARG. XXIII.} = \text{VI.} - 2(\zeta + N) = 2(\zeta - \odot) - A - 2(\zeta + N).$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 16",9              | 16",0             | 13",4            | 10",0             | 6",6               | 4",0                | 30° |
| 1  | 16,9               | 15,9              | 13,3             | 9,9               | 6,4                | 4,0                 | 29  |
| 2  | 16,9               | 15,8              | 13,2             | 9,8               | 6,3                | 3,9                 | 28  |
| 3  | 16,9               | 15,8              | 13,1             | 9,6               | 6,2                | 3,9                 | 27  |
| 4  | 16,9               | 15,7              | 13,0             | 9,5               | 6,1                | 3,8                 | 26  |
| 5  | 16,9               | 15,7              | 12,9             | 9,4               | 6,0                | 3,8                 | 25  |
| 6  | 16,9               | 15,6              | 12,8             | 9,3               | 5,9                | 3,7                 | 24  |
| 7  | 16,8               | 15,5              | 12,7             | 9,2               | 5,9                | 3,7                 | 23  |
| 8  | 16,8               | 15,4              | 12,6             | 9,0               | 5,8                | 3,6                 | 22  |
| 9  | 16,8               | 15,4              | 12,5             | 8,9               | 5,7                | 3,6                 | 21  |
| 10 | 16,8               | 15,3              | 12,4             | 8,8               | 5,6                | 3,5                 | 20  |
| 11 | 16,8               | 15,2              | 12,2             | 8,7               | 5,5                | 3,5                 | 19  |
| 12 | 16,7               | 15,1              | 12,1             | 8,6               | 5,4                | 3,4                 | 18  |
| 13 | 16,7               | 15,0              | 12,0             | 8,5               | 5,3                | 3,4                 | 17  |
| 14 | 16,7               | 15,0              | 11,9             | 8,3               | 5,2                | 3,4                 | 16  |
| 15 | 16,7               | 14,9              | 11,8             | 8,2               | 5,1                | 3,3                 | 15  |
| 16 | 16,6               | 14,8              | 11,7             | 8,1               | 5,0                | 3,3                 | 14  |
| 17 | 16,6               | 14,7              | 11,5             | 8,0               | 5,0                | 3,3                 | 13  |
| 18 | 16,6               | 14,6              | 11,4             | 7,9               | 4,9                | 3,3                 | 12  |
| 19 | 16,5               | 14,5              | 11,3             | 7,8               | 4,8                | 3,2                 | 11  |
| 20 | 16,5               | 14,4              | 11,2             | 7,6               | 4,7                | 3,2                 | 10  |
| 21 | 16,4               | 14,3              | 11,1             | 7,5               | 4,6                | 3,2                 | 9   |
| 22 | 16,4               | 14,2              | 11,0             | 7,4               | 4,6                | 3,2                 | 8   |
| 23 | 16,3               | 14,1              | 10,8             | 7,3               | 4,5                | 3,2                 | 7   |
| 24 | 16,3               | 14,1              | 10,7             | 7,2               | 4,4                | 3,1                 | 6   |
| 25 | 16,2               | 14,0              | 10,6             | 7,1               | 4,3                | 3,1                 | 5   |
| 26 | 16,2               | 13,9              | 10,5             | 7,0               | 4,3                | 3,1                 | 4   |
| 27 | 16,1               | 13,8              | 10,4             | 6,9               | 4,2                | 3,1                 | 3   |
| 28 | 16,1               | 13,7              | 10,2             | 6,8               | 4,2                | 3,1                 | 2   |
| 29 | 16,0               | 13,6              | 10,1             | 6,7               | 4,1                | 3,1                 | 1   |
| 30 | 16,0               | 13,4              | 10,0             | 6,6               | 4,0                | 3,1                 | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |

TABLE XXX.

Equation XXIV.

$$\text{ARG. XXIV.} = \text{XXIII.} + 2A = 4A - 2(\zeta - \odot) - \text{Arg. I.}$$

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |     |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|-----|
| 0° | 1",2               | 2",4              | 5",6             | 10",0             | 14",4              | 17",6               | 30° |
| 1  | 1,2                | 2,5               | 5,7              | 10,2              | 14,5               | 17,7                | 29  |
| 2  | 1,2                | 2,5               | 5,9              | 10,3              | 14,7               | 17,8                | 28  |
| 3  | 1,2                | 2,6               | 6,0              | 10,5              | 14,8               | 17,8                | 27  |
| 4  | 1,2                | 2,7               | 6,1              | 10,6              | 14,9               | 17,9                | 26  |
| 5  | 1,2                | 2,8               | 6,3              | 10,8              | 15,0               | 18,0                | 25  |
| 6  | 1,3                | 2,9               | 6,4              | 10,9              | 15,2               | 18,0                | 24  |
| 7  | 1,3                | 3,0               | 6,6              | 11,1              | 15,3               | 18,1                | 23  |
| 8  | 1,3                | 3,1               | 6,7              | 11,2              | 15,4               | 18,2                | 22  |
| 9  | 1,3                | 3,2               | 6,8              | 11,4              | 15,5               | 18,2                | 21  |
| 10 | 1,3                | 3,3               | 7,0              | 11,5              | 15,7               | 18,3                | 20  |
| 11 | 1,4                | 3,4               | 7,1              | 11,7              | 15,8               | 18,3                | 19  |
| 12 | 1,4                | 3,5               | 7,3              | 11,8              | 15,9               | 18,4                | 18  |
| 13 | 1,4                | 3,6               | 7,4              | 12,0              | 16,0               | 18,4                | 17  |
| 14 | 1,5                | 3,7               | 7,6              | 12,1              | 16,1               | 18,5                | 16  |
| 15 | 1,5                | 3,8               | 7,7              | 12,3              | 16,2               | 18,5                | 15  |
| 16 | 1,5                | 3,9               | 7,9              | 12,4              | 16,3               | 18,5                | 14  |
| 17 | 1,6                | 4,0               | 8,0              | 12,6              | 16,4               | 18,6                | 13  |
| 18 | 1,6                | 4,1               | 8,2              | 12,7              | 16,5               | 18,6                | 12  |
| 19 | 1,7                | 4,2               | 8,3              | 12,9              | 16,6               | 18,6                | 11  |
| 20 | 1,7                | 4,3               | 8,5              | 13,0              | 16,7               | 18,7                | 10  |
| 21 | 1,8                | 4,5               | 8,6              | 13,2              | 16,8               | 18,7                | 9   |
| 22 | 1,8                | 4,6               | 8,8              | 13,3              | 16,9               | 18,7                | 8   |
| 23 | 1,9                | 4,7               | 8,9              | 13,4              | 17,0               | 18,7                | 7   |
| 24 | 2,0                | 4,8               | 9,1              | 13,6              | 17,1               | 18,7                | 6   |
| 25 | 2,0                | 5,0               | 9,2              | 13,7              | 17,2               | 18,8                | 5   |
| 26 | 2,1                | 5,1               | 9,4              | 13,9              | 17,3               | 18,8                | 4   |
| 27 | 2,2                | 5,2               | 9,5              | 14,0              | 17,4               | 18,8                | 3   |
| 28 | 2,2                | 5,3               | 9,7              | 14,1              | 17,4               | 18,8                | 2   |
| 29 | 2,3                | 5,5               | 9,8              | 14,3              | 17,5               | 18,8                | 1   |
| 30 | 2,4                | 5,6               | 10,0             | 14,4              | 17,6               | 18,8                | 0   |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |     |



TABLE XXXI.

Equation of the Mean Anomaly of the Moon.

ARGUMENT I. or Sun's Mean Anomaly.

|    | O <sup>s</sup> .                      |       | I <sup>s</sup> .                    |       | II <sup>s</sup> .                   |       | III <sup>s</sup> .                  |       | IV <sup>s</sup> .                   |       | V <sup>s</sup> .                    |       |
|----|---------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|
|    | + 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 27 <sup>o</sup> . | Diff. |
| 0  | 59. 60,0                              | "     | 48. 41,8                            | "     | 40. 32,4                            | "     | 37. 42,7                            | "     | 40. 51,4                            | "     | 49. 0,9                             | "     |
| 1  | 59. 36,3                              | 23,7  | 48. 21,5                            | 20,3  | 40. 21,0                            | 11,4  | 37. 43,4                            | 0,7   | 41. 3,4                             | 12,0  | 49. 21,0                            | 20,1  |
| 2  | 59. 12,6                              | 23,7  | 48. 1,5                             | 20,0  | 40. 10,1                            | 10,9  | 37. 44,3                            | 0,9   | 41. 15,8                            | 12,4  | 49. 41,3                            | 20,3  |
| 3  | 58. 48,9                              | 23,7  | 47. 41,7                            | 19,8  | 39. 59,6                            | 10,5  | 37. 45,7                            | 1,4   | 41. 28,5                            | 12,7  | 50. 1,8                             | 20,5  |
| 4  | 58. 25,2                              | 23,7  | 47. 22,1                            | 19,6  | 39. 49,4                            | 10,2  | 37. 47,5                            | 1,8   | 41. 41,5                            | 13,0  | 50. 22,4                            | 20,6  |
| 5  | 58. 1,5                               | 23,7  | 47. 2,7                             | 19,4  | 39. 39,6                            | 9,8   | 37. 49,7                            | 2,2   | 41. 54,9                            | 13,4  | 50. 43,3                            | 20,9  |
|    |                                       | 23,6  |                                     | 19,1  |                                     | 9,4   |                                     | 2,6   |                                     | 13,7  |                                     | 21,0  |
| 6  | 57. 37,9                              | 23,5  | 46. 43,6                            | 18,9  | 39. 30,2                            | 9,1   | 37. 52,3                            | 3,0   | 42. 8,6                             | 13,9  | 51. 4,3                             | 21,1  |
| 7  | 57. 14,4                              | 23,5  | 46. 24,7                            | 18,6  | 39. 21,1                            | 8,6   | 37. 55,3                            | 3,5   | 42. 22,5                            | 14,3  | 51. 25,4                            | 21,3  |
| 8  | 56. 50,9                              | 23,5  | 46. 6,1                             | 18,4  | 39. 12,5                            | 8,3   | 37. 58,8                            | 3,8   | 42. 36,8                            | 14,7  | 51. 46,7                            | 21,4  |
| 9  | 56. 27,4                              | 23,5  | 45. 47,7                            | 18,1  | 39. 4,2                             | 7,9   | 38. 2,6                             | 4,2   | 42. 51,5                            | 14,9  | 52. 8,1                             | 21,6  |
| 10 | 56. 4,0                               | 23,4  | 45. 29,6                            | 17,8  | 38. 56,3                            | 7,5   | 38. 6,8                             | 4,6   | 43. 6,4                             | 15,2  | 52. 29,7                            | 21,7  |
|    |                                       | 23,3  |                                     | 17,5  |                                     | 7,1   |                                     | 5,0   |                                     | 15,5  |                                     | 21,8  |
| 11 | 55. 40,7                              | 23,2  | 45. 11,8                            | 17,3  | 38. 48,8                            | 6,7   | 38. 11,4                            | 5,4   | 43. 21,6                            | 15,8  | 52. 51,4                            | 21,9  |
| 12 | 55. 17,5                              | 23,1  | 44. 54,3                            | 16,9  | 38. 41,7                            | 6,3   | 38. 16,4                            | 5,8   | 43. 37,1                            | 16,1  | 53. 13,2                            | 22,1  |
| 13 | 54. 54,4                              | 23,0  | 44. 37,0                            | 16,7  | 38. 35,0                            | 5,9   | 38. 21,8                            | 6,2   | 43. 52,9                            | 16,4  | 53. 35,1                            | 22,2  |
| 14 | 54. 31,4                              | 23,0  | 44. 20,1                            | 16,3  | 38. 28,7                            | 5,5   | 38. 27,6                            | 6,6   | 44. 9,0                             | 16,6  | 53. 57,2                            | 22,2  |
| 15 | 54. 8,4                               | 22,8  | 44. 3,4                             | 16,1  | 38. 22,8                            | 5,1   | 38. 33,8                            | 6,9   | 44. 25,4                            | 16,9  | 54. 19,4                            | 22,4  |
|    |                                       | 22,7  |                                     | 15,7  |                                     | 4,7   |                                     | 7,3   |                                     | 17,2  |                                     | 22,4  |
| 16 | 53. 45,6                              | 22,6  | 43. 47,1                            | 15,4  | 38. 17,3                            | 4,3   | 38. 40,4                            | 7,7   | 44. 42,0                            | 17,4  | 54. 41,6                            | 22,5  |
| 17 | 53. 22,9                              | 22,4  | 43. 31,0                            | 15,2  | 38. 12,2                            | 3,9   | 38. 47,3                            | 8,1   | 44. 58,9                            | 17,7  | 55. 4,0                             | 22,6  |
| 18 | 53. 0,3                               | 22,3  | 43. 15,3                            | 14,8  | 38. 7,5                             | 3,5   | 38. 54,6                            | 8,5   | 45. 16,1                            | 17,9  | 55. 26,4                            | 22,7  |
| 19 | 52. 37,9                              | 22,2  | 42. 59,9                            | 14,4  | 38. 3,2                             | 3,1   | 39. 2,3                             | 8,8   | 45. 33,5                            | 18,2  | 55. 48,9                            | 22,8  |
| 20 | 52. 15,6                              | 22,0  | 42. 44,7                            | 14,1  | 37. 59,3                            | 2,7   | 39. 10,4                            | 9,2   | 45. 51,2                            | 18,4  | 56. 11,5                            | 22,9  |
|    |                                       | 21,8  |                                     | 13,8  |                                     | 2,2   |                                     | 9,6   |                                     | 18,7  |                                     | 23,0  |
| 21 | 51. 53,4                              | 21,7  | 42. 29,9                            | 13,4  | 37. 55,8                            | 1,9   | 39. 18,9                            | 9,9   | 46. 9,1                             | 18,9  | 56. 34,1                            | 23,0  |
| 22 | 51. 31,4                              | 21,5  | 42. 15,5                            | 13,1  | 37. 52,7                            | 1,5   | 39. 27,7                            | 10,3  | 46. 27,3                            | 19,1  | 56. 56,8                            | 23,0  |
| 23 | 51. 9,6                               | 21,3  | 42. 1,4                             | 12,7  | 37. 50,0                            | 1,0   | 39. 36,9                            | 10,6  | 46. 45,7                            | 19,3  | 57. 19,6                            | 23,0  |
| 24 | 50. 47,9                              | 21,1  | 41. 47,6                            | 12,4  | 37. 47,8                            | 0,6   | 39. 46,5                            | 11,0  | 47. 4,4                             | 19,5  | 57. 42,4                            | 23,0  |
| 25 | 50. 26,4                              | 20,9  | 41. 34,2                            | 12,0  | 37. 45,9                            | 0,3   | 39. 56,4                            | 11,4  | 47. 23,3                            | 19,7  | 58. 5,3                             | 23,0  |
|    |                                       | 20,7  |                                     | 11,6  |                                     | 0,2   |                                     | 11,7  |                                     | 20,0  |                                     |       |
| 26 | 50. 5,1                               | 20,6  | 41. 21,1                            | 11,4  | 37. 44,4                            | 0,2   | 40. 6,7                             | 11,7  | 47. 42,4                            | 20,0  | 58. 28,2                            |       |
| 27 | 49. 44,0                              | 20,6  | 41. 8,4                             | 11,2  | 37. 43,4                            | 0,2   | 40. 17,3                            | 11,7  | 48. 1,7                             | 20,0  | 58. 51,1                            |       |
| 28 | 49. 23,1                              | 20,6  | 40. 56,0                            | 11,0  | 37. 42,8                            | 0,2   | 40. 28,3                            | 11,7  | 48. 21,2                            | 20,0  | 59. 14,0                            |       |
| 29 | 49. 2,4                               | 20,6  | 40. 44,0                            | 10,8  | 37. 42,5                            | 0,2   | 40. 39,7                            | 11,7  | 48. 40,9                            | 20,0  | 59. 37,0                            |       |
| 30 | 48. 41,8                              | 20,6  | 40. 32,4                            | 10,6  | 37. 42,7                            | 0,2   | 40. 51,4                            | 11,7  | 49. 0,9                             | 20,0  | 59. 60,0                            |       |

Besides this Equation, we must add to the Mean Anomaly, the Sum of the 24 preceding Equations of Longitude.



## Continuation of TABLE XXXI.

Equation of the Mean Anomaly of the Moon.

ARGUMENT I. or Sun's Mean Anomaly.

|    | VI <sup>s</sup> .                   |       |          | VII <sup>s</sup> .                  |          |      | VIII <sup>s</sup> .                 |       |          | IX <sup>s</sup> .                   |          |      | X <sup>s</sup> .                    |       |  | XI <sup>s</sup> .                   |       |
|----|-------------------------------------|-------|----------|-------------------------------------|----------|------|-------------------------------------|-------|----------|-------------------------------------|----------|------|-------------------------------------|-------|--|-------------------------------------|-------|
|    | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff. |          | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff.    |      | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff. |          | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff.    |      | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff. |  | 11 <sup>s</sup> . 28 <sup>o</sup> . | Diff. |
| 0  | 0. 0,0                              |       | 10. 59,1 |                                     | 19. 8,6  |      | 22. 17,3                            |       | 19. 27,7 |                                     | 11. 18,2 |      |                                     |       |  |                                     |       |
| 1  | 0. 23,0                             | 23,0  | 11. 19,1 | 20,0                                | 19. 20,3 | 11,7 | 22. 17,5                            | 0,2   | 19. 16,0 | 11,7                                | 10. 57,6 | 20,6 |                                     |       |  |                                     |       |
| 2  | 0. 46,0                             | 23,0  | 11. 38,8 | 19,7                                | 19. 31,7 | 11,4 | 22. 17,2                            | 0,3   | 19. 4,0  | 12,0                                | 10. 36,9 | 20,7 |                                     |       |  |                                     |       |
| 3  | 1. 8,9                              | 22,9  | 11. 58,3 | 19,5                                | 19. 42,7 | 11,0 | 22. 16,6                            | 0,6   | 18. 51,6 | 12,4                                | 10. 16,0 | 20,9 |                                     |       |  |                                     |       |
| 4  | 1. 31,8                             | 22,9  | 12. 17,6 | 19,3                                | 19. 53,3 | 10,6 | 22. 15,6                            | 1,0   | 18. 38,9 | 12,7                                | 9. 54,9  | 21,1 |                                     |       |  |                                     |       |
| 5  | 1. 54,7                             | 22,9  | 12. 36,7 | 19,1                                | 20. 3,6  | 10,3 | 22. 14,1                            | 1,5   | 18. 25,8 | 13,1                                | 9. 33,6  | 21,3 |                                     |       |  |                                     |       |
| 6  |                                     | 22,9  |          | 18,9                                |          | 9,9  |                                     | 1,9   |          | 13,4                                |          | 21,5 |                                     |       |  |                                     |       |
| 7  | 2. 17,6                             | 22,8  | 12. 55,6 | 18,7                                | 20. 13,5 | 9,6  | 22. 12,2                            | 2,2   | 18. 12,4 | 13,8                                | 9. 12,1  | 21,7 |                                     |       |  |                                     |       |
| 8  | 2. 40,4                             | 22,8  | 13. 14,3 | 18,4                                | 20. 23,1 | 9,2  | 22. 10,0                            | 2,7   | 17. 58,6 | 14,1                                | 8. 50,4  | 21,8 |                                     |       |  |                                     |       |
| 9  | 3. 3,2                              | 22,7  | 13. 32,7 | 18,2                                | 20. 32,3 | 8,8  | 22. 7,3                             | 3,1   | 17. 44,5 | 14,4                                | 8. 28,6  | 22,0 |                                     |       |  |                                     |       |
| 10 | 3. 25,9                             | 22,6  | 13. 50,9 | 17,9                                | 20. 41,1 | 8,5  | 22. 4,2                             | 3,5   | 17. 30,1 | 14,8                                | 8. 6,6   | 22,2 |                                     |       |  |                                     |       |
|    | 3. 48,5                             | 22,6  | 14. 8,8  | 17,7                                | 20. 49,6 | 8,1  | 22. 0,7                             | 3,9   | 17. 15,3 | 15,1                                | 7. 44,4  | 22,3 |                                     |       |  |                                     |       |
| 11 | 4. 11,1                             | 22,5  | 14. 26,5 | 17,4                                | 20. 57,7 | 7,7  | 21. 56,8                            | 4,3   | 17. 0,2  | 15,5                                | 7. 22,1  | 22,5 |                                     |       |  |                                     |       |
| 12 | 4. 33,6                             | 22,4  | 14. 43,9 | 17,2                                | 21. 5,4  | 7,3  | 21. 52,5                            | 4,7   | 16. 44,7 | 15,7                                | 6. 59,6  | 22,6 |                                     |       |  |                                     |       |
| 13 | 4. 56,0                             | 22,4  | 15. 1,1  | 16,9                                | 21. 12,7 | 6,9  | 21. 47,8                            | 5,1   | 16. 29,0 | 16,1                                | 6. 37,0  | 22,7 |                                     |       |  |                                     |       |
| 14 | 5. 18,4                             | 22,2  | 15. 18,0 | 16,6                                | 21. 19,6 | 6,6  | 21. 42,7                            | 5,5   | 16. 12,9 | 16,4                                | 6. 14,3  | 22,8 |                                     |       |  |                                     |       |
| 15 | 5. 40,6                             | 22,2  | 15. 34,6 | 16,4                                | 21. 26,2 | 6,2  | 21. 37,2                            | 5,9   | 15. 56,5 | 16,6                                | 5. 51,5  | 22,9 |                                     |       |  |                                     |       |
| 16 | 6. 2,8                              | 22,1  | 15. 51,0 | 16,1                                | 21. 32,4 | 5,8  | 21. 31,3                            | 6,3   | 15. 39,9 | 16,9                                | 5. 28,6  | 23,0 |                                     |       |  |                                     |       |
| 17 | 6. 24,9                             | 21,9  | 16. 7,1  | 15,8                                | 21. 38,2 | 5,4  | 21. 25,0                            | 6,7   | 15. 23,0 | 17,3                                | 5. 5,6   | 23,1 |                                     |       |  |                                     |       |
| 18 | 6. 46,8                             | 21,8  | 16. 22,9 | 15,5                                | 21. 43,6 | 5,0  | 21. 18,3                            | 7,1   | 15. 5,7  | 17,5                                | 4. 42,5  | 23,2 |                                     |       |  |                                     |       |
| 19 | 7. 8,6                              | 21,7  | 16. 38,4 | 15,2                                | 21. 48,6 | 4,6  | 21. 11,2                            | 7,5   | 14. 48,2 | 17,8                                | 4. 19,3  | 23,3 |                                     |       |  |                                     |       |
| 20 | 7. 30,3                             | 21,6  | 16. 53,6 | 14,9                                | 21. 53,2 | 4,2  | 21. 3,7                             | 7,9   | 14. 30,4 | 18,1                                | 3. 56,0  | 23,4 |                                     |       |  |                                     |       |
| 21 | 7. 51,9                             | 21,4  | 17. 8,5  | 14,7                                | 21. 57,4 | 3,8  | 20. 55,8                            | 8,3   | 14. 12,3 | 18,4                                | 3. 32,6  | 23,5 |                                     |       |  |                                     |       |
| 22 | 8. 13,3                             | 21,3  | 17. 23,2 | 14,3                                | 22. 1,2  | 3,5  | 20. 47,5                            | 8,6   | 13. 53,9 | 18,6                                | 3. 9,1   | 23,5 |                                     |       |  |                                     |       |
| 23 | 8. 34,6                             | 21,1  | 17. 37,5 | 13,9                                | 22. 4,7  | 3,0  | 20. 38,9                            | 9,1   | 13. 35,3 | 18,9                                | 2. 45,6  | 23,5 |                                     |       |  |                                     |       |
| 24 | 8. 55,7                             | 21,0  | 17. 51,4 | 13,7                                | 22. 7,7  | 2,6  | 20. 29,8                            | 9,4   | 13. 16,4 | 19,1                                | 2. 22,1  | 23,6 |                                     |       |  |                                     |       |
| 25 | 9. 16,7                             | 20,9  | 18. 5,1  | 13,4                                | 22. 10,3 | 2,2  | 20. 20,4                            | 9,8   | 12. 57,3 | 19,4                                | 1. 58,5  | 23,7 |                                     |       |  |                                     |       |
| 26 | 9. 37,6                             | 20,6  | 18. 18,5 | 13,0                                | 22. 12,5 | 1,8  | 20. 10,6                            | 10,2  | 12. 37,9 | 19,6                                | 1. 34,8  | 23,7 |                                     |       |  |                                     |       |
| 27 | 9. 58,2                             | 20,5  | 18. 31,5 | 12,7                                | 22. 14,3 | 1,4  | 20. 0,4                             | 10,5  | 12. 18,3 | 19,8                                | 1. 11,1  | 23,7 |                                     |       |  |                                     |       |
| 28 | 10. 18,7                            | 20,3  | 18. 44,2 | 12,4                                | 22. 15,7 | 1,0  | 19. 49,9                            | 10,9  | 11. 58,5 | 20,0                                | 0. 47,4  | 23,7 |                                     |       |  |                                     |       |
| 29 | 10. 39,0                            | 20,1  | 18. 56,6 | 12,0                                | 22. 16,7 | 0,6  | 19. 39,0                            | 11,3  | 11. 38,5 | 20,3                                | 0. 23,7  | 23,7 |                                     |       |  |                                     |       |
| 30 | 10. 59,1                            |       | 19. 8,6  |                                     | 22. 17,3 |      | 19. 27,7                            |       | 11. 18,2 |                                     | 0. 0,0   |      |                                     |       |  |                                     |       |

Besides this Equation, we must add to the Mean Anomaly, the Sum of the 24 preceding Equations of Longitude.



TABLE XXXII.

Equation of the Node.

ARGUMENT I. or Sun's Mean Anomaly.

|    | O <sup>s</sup> .                    |       | I <sup>s</sup> .                    |       | II <sup>s</sup> .                   |       | III <sup>s</sup> .                  |       | IV <sup>s</sup> .                   |       | V <sup>s</sup> .                    |       |
|----|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|
|    | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. |
| 0  | 22. 0,0                             | "     | 26. 33,5                            | 8,2   | 29. 51,1                            | "     | 31. 0,0                             | "     | 29. 44,2                            | "     | 26. 26,5                            | "     |
| 1  | 22. 9,5                             | 9,5   | 26. 41,7                            | 8,1   | 29. 55,7                            | 4,6   | 30. 59,7                            | 0,3   | 29. 39,3                            | 4,8   | 26. 18,4                            | 8,1   |
| 2  | 22. 19,1                            | 9,6   | 26. 49,8                            | 8,0   | 30. 0,1                             | 4,4   | 30. 59,3                            | 0,4   | 29. 34,3                            | 5,0   | 26. 10,2                            | 8,2   |
| 3  | 22. 28,6                            | 9,5   | 26. 57,8                            | 7,9   | 30. 4,4                             | 4,3   | 30. 58,7                            | 0,6   | 29. 29,2                            | 5,1   | 26. 1,9                             | 8,3   |
| 4  | 22. 38,2                            | 9,6   | 27. 5,7                             | 7,8   | 30. 8,5                             | 4,1   | 30. 58,0                            | 0,7   | 29. 23,9                            | 5,3   | 25. 53,5                            | 8,4   |
| 5  | 22. 47,7                            | 9,5   | 27. 13,5                            | 7,7   | 30. 12,5                            | 4,0   | 30. 57,2                            | 0,8   | 29. 18,5                            | 5,4   | 25. 45,1                            | 8,4   |
|    |                                     | 9,5   |                                     | 7,7   |                                     | 3,8   |                                     | 1,0   |                                     | 5,5   |                                     | 8,5   |
| 6  | 22. 57,2                            | 9,6   | 27. 21,2                            | 7,6   | 30. 16,3                            | 3,7   | 30. 56,2                            | 1,3   | 29. 13,0                            | 5,6   | 25. 36,6                            | 8,5   |
| 7  | 23. 6,8                             | 9,5   | 27. 28,8                            | 7,5   | 30. 20,0                            | 3,5   | 30. 54,9                            | 1,4   | 29. 7,4                             | 5,7   | 25. 28,1                            | 8,6   |
| 8  | 23. 16,3                            | 9,5   | 27. 36,3                            | 7,4   | 30. 23,5                            | 3,3   | 30. 53,5                            | 1,5   | 29. 1,7                             | 5,9   | 25. 19,5                            | 8,7   |
| 9  | 23. 25,8                            | 9,4   | 27. 43,7                            | 7,3   | 30. 26,8                            | 3,2   | 30. 52,0                            | 1,6   | 28. 55,8                            | 6,0   | 25. 10,8                            | 8,7   |
| 10 | 23. 35,2                            | 9,4   | 27. 51,0                            | 7,2   | 30. 30,0                            | 3,1   | 30. 50,4                            | 1,8   | 28. 49,8                            | 6,1   | 25. 2,1                             | 8,8   |
|    |                                     | 9,4   |                                     | 7,2   |                                     | 2,9   |                                     | 2,0   |                                     | 6,3   |                                     | 8,8   |
| 11 | 23. 44,6                            | 9,3   | 27. 58,2                            | 7,1   | 30. 33,1                            | 2,9   | 30. 48,6                            | 2,0   | 28. 43,7                            | 6,3   | 24. 53,3                            | 8,8   |
| 12 | 23. 53,9                            | 9,4   | 28. 5,3                             | 7,0   | 30. 36,0                            | 2,6   | 30. 46,6                            | 2,2   | 28. 37,4                            | 6,4   | 24. 44,5                            | 8,8   |
| 13 | 24. 3,3                             | 9,3   | 28. 12,3                            | 6,8   | 30. 38,6                            | 2,5   | 30. 44,4                            | 2,3   | 28. 31,0                            | 6,6   | 24. 35,7                            | 8,9   |
| 14 | 24. 12,6                            | 9,2   | 28. 19,1                            | 6,7   | 30. 41,1                            | 2,5   | 30. 42,1                            | 2,5   | 28. 24,4                            | 6,6   | 24. 26,8                            | 9,0   |
| 15 | 24. 21,8                            | 9,2   | 28. 25,8                            | 6,6   | 30. 43,6                            | 2,3   | 30. 39,6                            | 2,6   | 28. 17,8                            | 6,7   | 24. 17,8                            | 9,0   |
|    |                                     | 9,2   |                                     | 6,6   |                                     | 2,1   |                                     | 2,8   |                                     | 6,8   |                                     | 9,1   |
| 16 | 24. 31,0                            | 9,1   | 28. 32,4                            | 6,5   | 30. 45,9                            | 1,9   | 30. 37,0                            | 3,0   | 28. 11,1                            | 6,9   | 24. 8,8                             | 9,1   |
| 17 | 24. 40,1                            | 9,0   | 28. 38,9                            | 6,4   | 30. 48,0                            | 1,7   | 30. 34,2                            | 3,1   | 28. 4,3                             | 7,1   | 23. 59,7                            | 9,1   |
| 18 | 24. 49,3                            | 9,0   | 28. 45,3                            | 6,2   | 30. 49,9                            | 1,6   | 30. 31,2                            | 3,3   | 27. 57,4                            | 7,1   | 23. 50,7                            | 9,2   |
| 19 | 24. 58,3                            | 8,9   | 28. 51,5                            | 6,0   | 30. 51,6                            | 1,4   | 30. 28,1                            | 3,4   | 27. 50,3                            | 7,3   | 23. 41,6                            | 9,2   |
| 20 | 25. 7,3                             | 8,9   | 28. 57,6                            | 6,0   | 30. 53,2                            | 1,2   | 30. 24,8                            | 3,5   | 27. 43,2                            | 7,3   | 23. 32,4                            | 9,2   |
|    |                                     | 8,9   |                                     | 6,0   |                                     | 1,2   |                                     | 3,5   |                                     | 7,3   |                                     | 9,2   |
| 21 | 25. 16,2                            | 8,8   | 29. 3,6                             | 5,8   | 30. 54,6                            | 1,1   | 30. 21,4                            | 3,7   | 27. 35,9                            | 7,4   | 23. 23,2                            | 9,2   |
| 22 | 25. 25,1                            | 8,7   | 29. 9,4                             | 5,7   | 30. 55,8                            | 0,9   | 30. 17,9                            | 3,9   | 27. 28,6                            | 7,6   | 23. 14,0                            | 9,2   |
| 23 | 25. 33,9                            | 8,7   | 29. 15,1                            | 5,5   | 30. 56,9                            | 0,8   | 30. 14,2                            | 4,0   | 27. 21,2                            | 7,7   | 23. 4,8                             | 9,3   |
| 24 | 25. 42,6                            | 8,6   | 29. 20,6                            | 5,4   | 30. 57,8                            | 0,6   | 30. 10,3                            | 4,2   | 27. 13,6                            | 7,8   | 22. 55,6                            | 9,3   |
| 25 | 25. 51,3                            | 8,5   | 29. 26,0                            | 5,2   | 30. 58,6                            | 0,4   | 30. 6,3                             | 4,3   | 27. 5,9                             | 7,8   | 22. 46,3                            | 9,3   |
|    |                                     | 8,5   |                                     | 5,2   |                                     | 0,3   |                                     | 4,4   |                                     | 7,8   |                                     | 9,3   |
| 26 | 25. 59,9                            | 8,4   | 29. 31,2                            | 5,1   | 30. 59,2                            | 0,1   | 30. 2,1                             | 4,5   | 26. 58,1                            | 7,9   | 22. 37,0                            | 9,3   |
| 27 | 26. 8,4                             | 8,4   | 29. 36,4                            | 4,9   | 30. 59,6                            | 0,0   | 29. 57,8                            | 4,6   | 26. 50,3                            | 8,0   | 22. 27,8                            | 9,3   |
| 28 | 26. 16,8                            | 8,3   | 29. 41,5                            | 4,7   | 30. 59,9                            | 0,0   | 29. 53,4                            | 4,6   | 26. 42,4                            | 8,0   | 22. 18,5                            | 9,3   |
| 29 | 26. 25,2                            | 8,3   | 29. 46,4                            | 4,7   | 31. 0,0                             | 0,0   | 29. 48,9                            | 4,6   | 26. 34,5                            | 8,0   | 22. 9,3                             | 9,3   |
| 30 | 26. 33,5                            | 8,3   | 29. 51,1                            | 4,7   | 31. 0,0                             | 0,0   | 29. 44,2                            | 4,6   | 26. 26,5                            | 8,0   | 22. 0,0                             | 9,3   |



## Continuation of TABLE XXXII.

Equation of the Node.

ARGUMENT I. or Sun's Mean Anomaly.

|    | VI <sup>s</sup> .                   |       |          | VII <sup>s</sup> .                  |          |     | VIII <sup>s</sup> .                 |       |          | IX <sup>s</sup> .                   |          |     | X <sup>s</sup> .                    |       |          | XI <sup>s</sup> .                   |          |     |
|----|-------------------------------------|-------|----------|-------------------------------------|----------|-----|-------------------------------------|-------|----------|-------------------------------------|----------|-----|-------------------------------------|-------|----------|-------------------------------------|----------|-----|
|    | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. |          | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff.    |     | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. |          | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff.    |     | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff. |          | 11 <sup>s</sup> . 29 <sup>o</sup> . | Diff.    |     |
| 0  | 22. 0,0                             | "     | 17. 33,5 | "                                   | 14. 15,8 | "   | 13. 0,0                             | "     | 14. 8,9  | "                                   | 17. 26,5 | "   | 17. 26,5                            | "     | 17. 26,5 | "                                   | 17. 26,5 | "   |
| 1  | 21. 50,7                            | 9,3   | 17. 25,5 | 8,0                                 | 14. 11,1 | 4,7 | 13. 0,0                             | 0,0   | 14. 13,6 | 4,7                                 | 17. 34,8 | 8,3 | 17. 34,8                            | 8,3   | 17. 34,8 | 8,3                                 | 17. 34,8 | 8,3 |
| 2  | 21. 41,5                            | 9,2   | 17. 17,4 | 8,1                                 | 14. 6,6  | 4,5 | 13. 0,1                             | 0,1   | 14. 18,5 | 4,9                                 | 17. 43,2 | 8,4 | 17. 43,2                            | 8,4   | 17. 43,2 | 8,4                                 | 17. 43,2 | 8,4 |
| 3  | 21. 32,2                            | 9,3   | 17. 9,5  | 7,9                                 | 14. 2,2  | 4,4 | 13. 0,4                             | 0,3   | 14. 23,6 | 5,1                                 | 17. 51,6 | 8,5 | 17. 51,6                            | 8,5   | 17. 51,6 | 8,5                                 | 17. 51,6 | 8,5 |
| 4  | 21. 23,0                            | 9,2   | 17. 1,8  | 7,7                                 | 13. 57,9 | 4,3 | 13. 0,8                             | 0,4   | 14. 28,7 | 5,1                                 | 18. 0,1  | 8,6 | 18. 0,1                             | 8,6   | 18. 0,1  | 8,6                                 | 18. 0,1  | 8,6 |
| 5  | 21. 13,7                            | 9,3   | 16. 54,1 | 7,7                                 | 13. 53,7 | 4,2 | 13. 1,4                             | 0,6   | 14. 33,9 | 5,2                                 | 18. 8,7  | 8,7 | 18. 8,7                             | 8,7   | 18. 8,7  | 8,7                                 | 18. 8,7  | 8,7 |
| 6  | 21. 4,4                             | 9,3   |          | 7,7                                 |          | 4,0 |                                     | 0,8   |          | 5,4                                 |          |     |                                     |       |          |                                     |          |     |
| 7  | 20. 55,2                            | 9,2   | 16. 46,4 | 7,6                                 | 13. 49,7 | 3,9 | 13. 2,2                             | 0,9   | 14. 39,3 | 5,6                                 | 18. 17,4 | 8,7 | 18. 17,4                            | 8,7   | 18. 17,4 | 8,7                                 | 18. 17,4 | 8,7 |
| 8  | 20. 45,9                            | 9,3   | 16. 38,8 | 7,5                                 | 13. 45,8 | 3,7 | 13. 3,1                             | 1,1   | 14. 44,9 | 5,7                                 | 18. 26,1 | 8,8 | 18. 26,1                            | 8,8   | 18. 26,1 | 8,8                                 | 18. 26,1 | 8,8 |
| 9  | 20. 36,8                            | 9,1   | 16. 31,3 | 7,3                                 | 13. 42,1 | 3,5 | 13. 4,2                             | 1,2   | 14. 50,6 | 5,8                                 | 18. 34,9 | 8,9 | 18. 34,9                            | 8,9   | 18. 34,9 | 8,9                                 | 18. 34,9 | 8,9 |
| 10 | 20. 27,6                            | 9,2   | 16. 24,0 | 7,2                                 | 13. 38,6 | 3,4 | 13. 5,4                             | 1,4   | 14. 56,4 | 6,0                                 | 18. 43,8 | 8,9 | 18. 43,8                            | 8,9   | 18. 43,8 | 8,9                                 | 18. 43,8 | 8,9 |
|    |                                     | 9,2   | 16. 16,8 | 7,1                                 | 13. 35,2 | 3,3 | 13. 6,8                             | 1,6   | 15. 2,4  | 6,1                                 | 18. 52,7 | 9,0 | 18. 52,7                            | 9,0   | 18. 52,7 | 9,0                                 | 18. 52,7 | 9,0 |
| 11 | 20. 18,4                            | 9,1   | 16. 9,7  | 7,1                                 | 13. 31,9 | 3,1 | 13. 8,4                             | 1,7   | 15. 8,5  | 6,2                                 | 19. 1,7  | 9,0 | 19. 1,7                             | 9,0   | 19. 1,7  | 9,0                                 | 19. 1,7  | 9,0 |
| 12 | 20. 9,3                             | 9,0   | 16. 2,6  | 6,9                                 | 13. 28,8 | 3,0 | 13. 10,1                            | 1,9   | 15. 14,7 | 6,4                                 | 19. 10,7 | 9,1 | 19. 10,7                            | 9,1   | 19. 10,7 | 9,1                                 | 19. 10,7 | 9,1 |
| 13 | 20. 0,3                             | 9,1   | 15. 55,7 | 6,8                                 | 13. 25,8 | 2,8 | 13. 12,0                            | 2,1   | 15. 21,1 | 6,5                                 | 19. 19,8 | 9,2 | 19. 19,8                            | 9,2   | 19. 19,8 | 9,2                                 | 19. 19,8 | 9,2 |
| 14 | 19. 51,2                            | 9,0   | 15. 48,9 | 6,7                                 | 13. 23,0 | 2,6 | 13. 14,1                            | 2,3   | 15. 27,6 | 6,6                                 | 19. 29,0 | 9,2 | 19. 29,0                            | 9,2   | 19. 29,0 | 9,2                                 | 19. 29,0 | 9,2 |
| 15 | 19. 42,2                            | 9,0   | 15. 42,2 | 6,6                                 | 13. 20,4 | 2,5 | 13. 16,4                            | 2,5   | 15. 34,2 | 6,7                                 | 19. 38,2 | 9,2 | 19. 38,2                            | 9,2   | 19. 38,2 | 9,2                                 | 19. 38,2 | 9,2 |
| 16 | 19. 33,2                            | 8,9   | 15. 35,6 | 6,5                                 | 13. 17,9 | 2,3 | 13. 18,9                            | 2,5   | 15. 40,9 | 6,8                                 | 19. 47,4 | 9,3 | 19. 47,4                            | 9,3   | 19. 47,4 | 9,3                                 | 19. 47,4 | 9,3 |
| 17 | 19. 24,3                            | 8,8   | 15. 29,1 | 6,4                                 | 13. 15,6 | 2,2 | 13. 21,4                            | 2,6   | 15. 47,7 | 7,0                                 | 19. 56,7 | 9,4 | 19. 56,7                            | 9,4   | 19. 56,7 | 9,4                                 | 19. 56,7 | 9,4 |
| 18 | 19. 15,5                            | 8,8   | 15. 22,7 | 6,3                                 | 13. 13,4 | 2,0 | 13. 24,0                            | 2,9   | 15. 54,7 | 7,1                                 | 20. 6,1  | 9,3 | 20. 6,1                             | 9,3   | 20. 6,1  | 9,3                                 | 20. 6,1  | 9,3 |
| 19 | 19. 6,7                             | 8,8   | 15. 16,4 | 6,2                                 | 13. 11,4 | 1,8 | 13. 26,9                            | 3,1   | 16. 1,8  | 7,2                                 | 20. 15,4 | 9,4 | 20. 15,4                            | 9,4   | 20. 15,4 | 9,4                                 | 20. 15,4 | 9,4 |
| 20 | 18. 57,9                            | 8,7   | 15. 10,2 | 6,0                                 | 13. 9,6  | 1,6 | 13. 30,0                            | 3,2   | 16. 9,0  | 7,3                                 | 20. 24,8 | 9,4 | 20. 24,8                            | 9,4   | 20. 24,8 | 9,4                                 | 20. 24,8 | 9,4 |
| 21 | 18. 49,2                            | 8,7   | 15. 4,2  | 5,9                                 | 13. 8,0  | 1,5 | 13. 33,2                            | 3,3   | 16. 16,3 | 7,4                                 | 20. 34,2 | 9,5 | 20. 34,2                            | 9,5   | 20. 34,2 | 9,5                                 | 20. 34,2 | 9,5 |
| 22 | 18. 40,5                            | 8,6   | 14. 58,3 | 5,7                                 | 13. 6,5  | 1,4 | 13. 36,5                            | 3,5   | 16. 23,7 | 7,5                                 | 20. 43,7 | 9,5 | 20. 43,7                            | 9,5   | 20. 43,7 | 9,5                                 | 20. 43,7 | 9,5 |
| 23 | 18. 31,9                            | 8,5   | 14. 52,6 | 5,6                                 | 13. 5,1  | 1,3 | 13. 40,0                            | 3,7   | 16. 31,2 | 7,6                                 | 20. 53,2 | 9,6 | 20. 53,2                            | 9,6   | 20. 53,2 | 9,6                                 | 20. 53,2 | 9,6 |
| 24 | 18. 23,4                            | 8,5   | 14. 47,0 | 5,5                                 | 13. 3,8  | 1,0 | 13. 43,7                            | 3,8   | 16. 38,8 | 7,7                                 | 21. 2,8  | 9,5 | 21. 2,8                             | 9,5   | 21. 2,8  | 9,5                                 | 21. 2,8  | 9,5 |
| 25 | 18. 14,9                            | 8,4   | 14. 41,5 | 5,4                                 | 13. 2,8  | 0,8 | 13. 47,5                            | 4,0   | 16. 46,5 | 7,8                                 | 21. 12,3 | 9,5 | 21. 12,3                            | 9,5   | 21. 12,3 | 9,5                                 | 21. 12,3 | 9,5 |
| 26 | 18. 6,5                             | 8,4   | 14. 36,1 | 5,2                                 | 13. 2,0  | 0,7 | 13. 51,5                            | 4,1   | 16. 54,3 | 7,9                                 | 21. 21,8 | 9,6 | 21. 21,8                            | 9,6   | 21. 21,8 | 9,6                                 | 21. 21,8 | 9,6 |
| 27 | 17. 58,1                            | 8,3   | 14. 30,9 | 5,2                                 | 13. 1,3  | 0,6 | 13. 55,6                            | 4,3   | 17. 2,2  | 8,0                                 | 21. 31,4 | 9,5 | 21. 31,4                            | 9,5   | 21. 31,4 | 9,5                                 | 21. 31,4 | 9,5 |
| 28 | 17. 49,8                            | 8,2   | 14. 25,7 | 5,1                                 | 13. 0,7  | 0,4 | 13. 59,9                            | 4,4   | 17. 10,2 | 8,1                                 | 21. 40,9 | 9,6 | 21. 40,9                            | 9,6   | 21. 40,9 | 9,6                                 | 21. 40,9 | 9,6 |
| 29 | 17. 41,6                            | 8,1   | 14. 20,6 | 4,9                                 | 13. 0,3  | 0,3 | 14. 4,3                             | 4,6   | 17. 18,3 | 8,2                                 | 21. 50,5 | 9,5 | 21. 50,5                            | 9,5   | 21. 50,5 | 9,5                                 | 21. 50,5 | 9,5 |
| 30 | 17. 33,5                            |       | 14. 15,7 |                                     | 13. 0,0  |     | 14. 8,9                             |       | 17. 26,5 |                                     | 22. 0,0  |     | 22. 0,0                             |       | 22. 0,0  |                                     | 22. 0,0  |     |



TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|          | Equation.        | Diff.   |           | Equation.        | Diff.   |           | Equation.        | Diff.  |
|----------|------------------|---------|-----------|------------------|---------|-----------|------------------|--------|
| s o o    | 11. 28. 0. 00,0  | 1. 10,9 | s o o     | 11. 28. 56. 28,4 | 1. 10,0 | s o o     | 11. 29. 51. 35,7 | 1. 7,5 |
| o. o. 10 | 11. 28. 1. 10,9  | 1. 10,8 | o. 8. 10  | 11. 28. 57. 38,4 | 1. 10,0 | o. 16. 10 | 11. 29. 52. 43,2 | 1. 7,4 |
| o. o. 20 | 11. 28. 2. 21,7  | 1. 10,9 | o. 8. 20  | 11. 28. 58. 48,4 | 1. 9,9  | o. 16. 20 | 11. 29. 53. 50,6 | 1. 7,3 |
| o. o. 30 | 11. 28. 3. 32,6  | 1. 10,9 | o. 8. 30  | 11. 28. 59. 58,3 | 1. 9,9  | o. 16. 30 | 11. 29. 54. 57,9 | 1. 7,3 |
| o. o. 40 | 11. 28. 4. 43,5  | 1. 10,9 | o. 8. 40  | 11. 29. 1. 8,2   | 1. 9,9  | o. 16. 40 | 11. 29. 56. 5,2  | 1. 7,2 |
| o. o. 50 | 11. 28. 5. 54,4  | 1. 10,8 | o. 8. 50  | 11. 29. 2. 18,1  | 1. 9,8  | o. 16. 50 | 11. 29. 57. 12,4 | 1. 7,1 |
| o. 1. 0  | 11. 28. 7. 5,2   | 1. 10,9 | o. 9. 0   | 11. 29. 3. 27,9  | 1. 9,8  | o. 17. 0  | 11. 29. 58. 19,5 | 1. 7,1 |
| o. 1. 10 | 11. 28. 8. 16,1  | 1. 10,8 | o. 9. 10  | 11. 29. 4. 37,7  | 1. 9,7  | o. 17. 10 | 11. 29. 59. 26,6 | 1. 7,0 |
| o. 1. 20 | 11. 28. 9. 26,9  | 1. 10,9 | o. 9. 20  | 11. 29. 5. 47,4  | 1. 9,7  | o. 17. 20 | o. o. 0. 33,6    | 1. 7,0 |
| o. 1. 30 | 11. 28. 10. 37,8 | 1. 10,8 | o. 9. 30  | 11. 29. 6. 57,1  | 1. 9,6  | o. 17. 30 | o. o. 1. 40,6    | 1. 6,9 |
| o. 1. 40 | 11. 28. 11. 48,6 | 1. 10,9 | o. 9. 40  | 11. 29. 8. 6,7   | 1. 9,6  | o. 17. 40 | o. o. 2. 47,5    | 1. 6,7 |
| o. 1. 50 | 11. 28. 12. 59,5 | 1. 10,8 | o. 9. 50  | 11. 29. 9. 16,3  | 1. 9,6  | o. 17. 50 | o. o. 3. 54,2    | 1. 6,7 |
| o. 2. 0  | 11. 28. 14. 10,3 | 1. 10,8 | o. 10. 0  | 11. 29. 10. 25,9 | 1. 9,5  | o. 18. 0  | o. o. 5. 0,9     | 1. 6,6 |
| o. 2. 10 | 11. 28. 15. 21,1 | 1. 10,8 | o. 10. 10 | 11. 29. 11. 35,4 | 1. 9,5  | o. 18. 10 | o. o. 6. 7,5     | 1. 6,5 |
| o. 2. 20 | 11. 28. 16. 31,9 | 1. 10,8 | o. 10. 20 | 11. 29. 12. 44,9 | 1. 9,4  | o. 18. 20 | o. o. 7. 14,0    | 1. 6,4 |
| o. 2. 30 | 11. 28. 17. 42,7 | 1. 10,8 | o. 10. 30 | 11. 29. 13. 54,4 | 1. 9,3  | o. 18. 30 | o. o. 8. 20,4    | 1. 6,3 |
| o. 2. 40 | 11. 28. 18. 53,5 | 1. 10,8 | o. 10. 40 | 11. 29. 15. 3,8  | 1. 9,3  | o. 18. 40 | o. o. 9. 26,7    | 1. 6,2 |
| o. 2. 50 | 11. 28. 20. 4,3  | 1. 10,7 | o. 10. 50 | 11. 29. 16. 13,1 | 1. 9,2  | o. 18. 50 | o. o. 10. 32,9   | 1. 6,2 |
| o. 3. 0  | 11. 28. 21. 15,0 | 1. 10,8 | o. 11. 0  | 11. 29. 17. 22,4 | 1. 9,2  | o. 19. 0  | o. o. 11. 39,1   | 1. 6,1 |
| o. 3. 10 | 11. 28. 22. 25,8 | 1. 10,7 | o. 11. 10 | 11. 29. 18. 31,6 | 1. 9,2  | o. 19. 10 | o. o. 12. 45,2   | 1. 6,0 |
| o. 3. 20 | 11. 28. 23. 36,5 | 1. 10,7 | o. 11. 20 | 11. 29. 19. 40,8 | 1. 9,1  | o. 19. 20 | o. o. 13. 51,2   | 1. 5,9 |
| o. 3. 30 | 11. 28. 24. 47,2 | 1. 10,7 | o. 11. 30 | 11. 29. 20. 50,0 | 1. 9,1  | o. 19. 30 | o. o. 14. 57,1   | 1. 5,9 |
| o. 3. 40 | 11. 28. 25. 57,9 | 1. 10,7 | o. 11. 40 | 11. 29. 21. 59,1 | 1. 9,0  | o. 19. 40 | o. o. 16. 3,0    | 1. 5,8 |
| o. 3. 50 | 11. 28. 27. 8,6  | 1. 10,7 | o. 11. 50 | 11. 29. 23. 8,2  | 1. 8,9  | o. 19. 50 | o. o. 17. 8,8    | 1. 5,7 |
| o. 4. 0  | 11. 28. 28. 19,3 | 1. 10,7 | o. 12. 0  | 11. 29. 24. 17,2 | 1. 8,9  | o. 20. 0  | o. o. 18. 14,5   | 1. 5,6 |
| o. 4. 10 | 11. 28. 29. 30,0 | 1. 10,6 | o. 12. 10 | 11. 29. 25. 26,1 | 1. 8,8  | o. 20. 10 | o. o. 19. 20,1   | 1. 5,5 |
| o. 4. 20 | 11. 28. 30. 40,6 | 1. 10,6 | o. 12. 20 | 11. 29. 26. 35,0 | 1. 8,8  | o. 20. 20 | o. o. 20. 25,6   | 1. 5,5 |
| o. 4. 30 | 11. 28. 31. 51,2 | 1. 10,6 | o. 12. 30 | 11. 29. 27. 43,8 | 1. 8,7  | o. 20. 30 | o. o. 21. 31,1   | 1. 5,4 |
| o. 4. 40 | 11. 28. 33. 1,8  | 1. 10,6 | o. 12. 40 | 11. 29. 28. 52,6 | 1. 8,7  | o. 20. 40 | o. o. 22. 36,5   | 1. 5,2 |
| o. 4. 50 | 11. 28. 34. 12,4 | 1. 10,5 | o. 12. 50 | 11. 29. 30. 1,3  | 1. 8,6  | o. 20. 50 | o. o. 23. 41,7   | 1. 5,2 |
| o. 5. 0  | 11. 28. 35. 22,9 | 1. 10,5 | o. 13. 0  | 11. 29. 31. 10,0 | 1. 8,6  | o. 21. 0  | o. o. 24. 46,9   | 1. 5,1 |
| o. 5. 10 | 11. 28. 36. 33,4 | 1. 10,5 | o. 13. 10 | 11. 29. 32. 18,6 | 1. 8,5  | o. 21. 10 | o. o. 25. 52,0   | 1. 5,0 |
| o. 5. 20 | 11. 28. 37. 43,9 | 1. 10,5 | o. 13. 20 | 11. 29. 33. 27,2 | 1. 8,5  | o. 21. 20 | o. o. 26. 57,0   | 1. 4,9 |
| o. 5. 30 | 11. 28. 38. 54,4 | 1. 10,5 | o. 13. 30 | 11. 29. 34. 35,7 | 1. 8,4  | o. 21. 30 | o. o. 28. 1,9    | 1. 4,8 |
| o. 5. 40 | 11. 28. 40. 04,9 | 1. 10,4 | o. 13. 40 | 11. 29. 35. 44,2 | 1. 8,4  | o. 21. 40 | o. o. 29. 6,7    | 1. 4,7 |
| o. 5. 50 | 11. 28. 41. 15,3 | 1. 10,4 | o. 13. 50 | 11. 29. 36. 52,6 | 1. 8,3  | o. 21. 50 | o. o. 30. 11,4   | 1. 4,6 |
| o. 6. 0  | 11. 28. 42. 25,7 | 1. 10,4 | o. 14. 0  | 11. 29. 38. 0,9  | 1. 8,3  | o. 22. 0  | o. o. 31. 16,0   | 1. 4,5 |
| o. 6. 10 | 11. 28. 43. 36,1 | 1. 10,4 | o. 14. 10 | 11. 29. 39. 9,2  | 1. 8,2  | o. 22. 10 | o. o. 32. 20,5   | 1. 4,4 |
| o. 6. 20 | 11. 28. 44. 46,5 | 1. 10,3 | o. 14. 20 | 11. 29. 40. 17,4 | 1. 8,1  | o. 22. 20 | o. o. 33. 24,9   | 1. 4,4 |
| o. 6. 30 | 11. 28. 45. 56,8 | 1. 10,3 | o. 14. 30 | 11. 29. 41. 25,5 | 1. 8,1  | o. 22. 30 | o. o. 34. 29,3   | 1. 4,3 |
| o. 6. 40 | 11. 28. 47. 7,1  | 1. 10,3 | o. 14. 40 | 11. 29. 42. 33,6 | 1. 8,0  | o. 22. 40 | o. o. 35. 33,6   | 1. 4,2 |
| o. 6. 50 | 11. 28. 48. 17,4 | 1. 10,2 | o. 14. 50 | 11. 29. 43. 41,6 | 1. 7,9  | o. 22. 50 | o. o. 36. 37,8   | 1. 4,1 |
| o. 7. 0  | 11. 28. 49. 27,6 | 1. 10,2 | o. 15. 0  | 11. 29. 44. 49,5 | 1. 7,9  | o. 23. 0  | o. o. 37. 41,9   | 1. 3,9 |
| o. 7. 10 | 11. 28. 50. 37,8 | 1. 10,2 | o. 15. 10 | 11. 29. 45. 57,4 | 1. 7,8  | o. 23. 10 | o. o. 38. 45,8   | 1. 3,9 |
| o. 7. 20 | 11. 28. 51. 48,0 | 1. 10,1 | o. 15. 20 | 11. 29. 47. 5,2  | 1. 7,7  | o. 23. 20 | o. o. 39. 49,7   | 1. 3,8 |
| o. 7. 30 | 11. 28. 52. 58,1 | 1. 10,2 | o. 15. 30 | 11. 29. 48. 12,9 | 1. 7,7  | o. 23. 30 | o. o. 40. 53,5   | 1. 3,6 |
| o. 7. 40 | 11. 28. 54. 8,3  | 1. 10,1 | o. 15. 40 | 11. 29. 49. 20,6 | 1. 7,6  | o. 23. 40 | o. o. 41. 57,1   | 1. 3,6 |
| o. 7. 50 | 11. 28. 55. 18,4 | 1. 10,0 | o. 15. 50 | 11. 29. 50. 28,2 | 1. 7,5  | o. 23. 50 | o. o. 43. 0,7    | 1. 3,5 |
| o. 8. 0  | 11. 28. 56. 28,4 |         | o. 16. 0  | 11. 29. 51. 35,7 |         | o. 24. 0  | o. o. 44. 4,2    |        |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|                          | Equation.               | Diff.            |                         | Equation.                   | Diff.             |                          | Equation.                   | Diff.             |
|--------------------------|-------------------------|------------------|-------------------------|-----------------------------|-------------------|--------------------------|-----------------------------|-------------------|
| <sup>s</sup><br>o. 24. 0 | <sup>s</sup> o. 44. 4,2 | <sup>i</sup> 3,4 | <sup>s</sup><br>1. 2. 0 | <sup>s</sup> o. 1. 32. 41,5 | <sup>i</sup> 57,8 | <sup>s</sup><br>1. 10. 0 | <sup>s</sup> o. 2. 16. 23,8 | <sup>i</sup> 51,1 |
| o. 24. 10                | o. 45. 7,6              | 1. 3,2           | 1. 2. 10                | o. 1. 33. 39,3              | o. 57,7           | 1. 10. 10                | o. 2. 17. 14,9              | o. 50,9           |
| o. 24. 20                | o. 46. 10,8             | 1. 3,2           | 1. 2. 20                | o. 1. 34. 37,0              | o. 57,6           | 1. 10. 20                | o. 2. 18. 5,8               | o. 50,8           |
| o. 24. 30                | o. 47. 14,0             | 1. 3,1           | 1. 2. 30                | o. 1. 35. 34,6              | o. 57,5           | 1. 10. 30                | o. 2. 18. 56,6              | o. 50,7           |
| o. 24. 40                | o. 48. 17,1             | 1. 2,9           | 1. 2. 40                | o. 1. 36. 32,1              | o. 57,3           | 1. 10. 40                | o. 2. 19. 47,3              | o. 50,5           |
| o. 24. 50                | o. 49. 20,0             | 1. 2,9           | 1. 2. 50                | o. 1. 37. 29,4              | o. 57,2           | 1. 10. 50                | o. 2. 20. 37,8              | o. 50,3           |
| o. 25. 0                 | o. 50. 22,9             | 1. 2,8           | 1. 3. 0                 | o. 1. 38. 26,6              | o. 57,1           | 1. 11. 0                 | o. 2. 21. 28,1              | o. 50,2           |
| o. 25. 10                | o. 51. 25,7             | 1. 2,6           | 1. 3. 10                | o. 1. 39. 23,7              | o. 56,9           | 1. 11. 10                | o. 2. 22. 18,3              | o. 50,0           |
| o. 25. 20                | o. 52. 28,3             | 1. 2,5           | 1. 3. 20                | o. 1. 40. 20,6              | o. 56,8           | 1. 11. 20                | o. 2. 23. 8,3               | o. 49,9           |
| o. 25. 30                | o. 53. 30,8             | 1. 2,5           | 1. 3. 30                | o. 1. 41. 17,4              | o. 56,7           | 1. 11. 30                | o. 2. 23. 58,2              | o. 49,7           |
| o. 25. 40                | o. 54. 33,3             | 1. 2,3           | 1. 3. 40                | o. 1. 42. 14,1              | o. 56,5           | 1. 11. 40                | o. 2. 24. 47,9              | o. 49,5           |
| o. 25. 50                | o. 55. 35,6             | 1. 2,2           | 1. 3. 50                | o. 1. 43. 10,6              | o. 56,4           | 1. 11. 50                | o. 2. 25. 37,4              | o. 49,4           |
| o. 26. 0                 | o. 56. 37,8             | 1. 2,1           | 1. 4. 0                 | o. 1. 44. 7,0               | o. 56,3           | 1. 12. 0                 | o. 2. 26. 26,8              | o. 49,2           |
| o. 26. 10                | o. 57. 39,9             | 1. 2,0           | 1. 4. 10                | o. 1. 45. 3,3               | o. 56,1           | 1. 12. 10                | o. 2. 27. 16,0              | o. 49,1           |
| o. 26. 20                | o. 58. 41,9             | 1. 1,9           | 1. 4. 20                | o. 1. 45. 59,4              | o. 56,0           | 1. 12. 20                | o. 2. 28. 5,1               | o. 48,9           |
| o. 26. 30                | o. 59. 43,8             | 1. 1,8           | 1. 4. 30                | o. 1. 46. 55,4              | o. 55,8           | 1. 12. 30                | o. 2. 28. 54,0              | o. 48,8           |
| o. 26. 40                | o. 1. 0. 45,6           | 1. 1,6           | 1. 4. 40                | o. 1. 47. 51,2              | o. 55,7           | 1. 12. 40                | o. 2. 29. 42,8              | o. 48,6           |
| o. 26. 50                | o. 1. 1. 47,2           | 1. 1,6           | 1. 4. 50                | o. 1. 48. 46,9              | o. 55,6           | 1. 12. 50                | o. 2. 30. 31,4              | o. 48,4           |
| o. 27. 0                 | o. 1. 2. 48,8           | 1. 1,5           | 1. 5. 0                 | o. 1. 49. 42,5              | o. 55,5           | 1. 13. 0                 | o. 2. 31. 19,8              | o. 48,3           |
| o. 27. 10                | o. 1. 3. 50,3           | 1. 1,4           | 1. 5. 10                | o. 1. 50. 38,0              | o. 55,3           | 1. 13. 10                | o. 2. 32. 8,1               | o. 48,1           |
| o. 27. 20                | o. 1. 4. 51,7           | 1. 1,2           | 1. 5. 20                | o. 1. 51. 33,3              | o. 55,2           | 1. 13. 20                | o. 2. 32. 56,2              | o. 48,0           |
| o. 27. 30                | o. 1. 5. 52,9           | 1. 1,1           | 1. 5. 30                | o. 1. 52. 28,5              | o. 55,0           | 1. 13. 30                | o. 2. 33. 44,2              | o. 47,8           |
| o. 27. 40                | o. 1. 6. 54,0           | 1. 1,0           | 1. 5. 40                | o. 1. 53. 23,5              | o. 54,9           | 1. 13. 40                | o. 2. 34. 32,0              | o. 47,6           |
| o. 27. 50                | o. 1. 7. 55,0           | 1. 0,9           | 1. 5. 50                | o. 1. 54. 18,4              | o. 54,7           | 1. 13. 50                | o. 2. 35. 19,6              | o. 47,5           |
| o. 28. 0                 | o. 1. 8. 55,9           | 1. 0,8           | 1. 6. 0                 | o. 1. 55. 13,1              | o. 54,6           | 1. 14. 0                 | o. 2. 36. 7,1               | o. 47,3           |
| o. 28. 10                | o. 1. 9. 56,7           | 1. 0,6           | 1. 6. 10                | o. 1. 56. 7,7               | o. 54,5           | 1. 14. 10                | o. 2. 36. 54,4              | o. 47,2           |
| o. 28. 20                | o. 1. 10. 57,3          | 1. 0,6           | 1. 6. 20                | o. 1. 57. 2,2               | o. 54,3           | 1. 14. 20                | o. 2. 37. 41,6              | o. 47,0           |
| o. 28. 30                | o. 1. 11. 57,9          | 1. 0,4           | 1. 6. 30                | o. 1. 57. 56,5              | o. 54,2           | 1. 14. 30                | o. 2. 38. 28,6              | o. 46,8           |
| o. 28. 40                | o. 1. 12. 58,3          | 1. 0,3           | 1. 6. 40                | o. 1. 58. 50,7              | o. 54,0           | 1. 14. 40                | o. 2. 39. 15,4              | o. 46,6           |
| o. 28. 50                | o. 1. 13. 58,6          | 1. 0,2           | 1. 6. 50                | o. 1. 59. 44,7              | o. 53,9           | 1. 14. 50                | o. 2. 40. 2,0               | o. 46,5           |
| o. 29. 0                 | o. 1. 14. 58,8          | 1. 0,1           | 1. 7. 0                 | o. 2. 0. 38,6               | o. 53,8           | 1. 15. 0                 | o. 2. 40. 48,5              | o. 46,3           |
| o. 29. 10                | o. 1. 15. 58,9          | 1. 0,0           | 1. 7. 10                | o. 2. 1. 32,4               | o. 53,6           | 1. 15. 10                | o. 2. 41. 34,8              | o. 46,1           |
| o. 29. 20                | o. 1. 16. 58,9          | o. 59,8          | 1. 7. 20                | o. 2. 2. 26,0               | o. 53,5           | 1. 15. 20                | o. 2. 42. 20,9              | o. 46,0           |
| o. 29. 30                | o. 1. 17. 58,7          | o. 59,7          | 1. 7. 30                | o. 2. 3. 19,5               | o. 53,3           | 1. 15. 30                | o. 2. 43. 6,9               | o. 45,8           |
| o. 29. 40                | o. 1. 18. 58,4          | o. 59,6          | 1. 7. 40                | o. 2. 4. 12,8               | o. 53,2           | 1. 15. 40                | o. 2. 43. 52,7              | o. 45,6           |
| o. 29. 50                | o. 1. 19. 58,0          | o. 59,5          | 1. 7. 50                | o. 2. 5. 6,0                | o. 53,0           | 1. 15. 50                | o. 2. 44. 38,3              | o. 45,5           |
| 1. 0. 0                  | o. 1. 20. 57,5          | o. 59,4          | 1. 8. 0                 | o. 2. 5. 59,0               | o. 52,9           | 1. 16. 0                 | o. 2. 45. 23,8              | o. 45,3           |
| 1. 0. 10                 | o. 1. 21. 56,9          | o. 59,2          | 1. 8. 10                | o. 2. 6. 51,9               | o. 52,7           | 1. 16. 10                | o. 2. 46. 9,1               | o. 45,2           |
| 1. 0. 20                 | o. 1. 22. 56,1          | o. 59,1          | 1. 8. 20                | o. 2. 7. 44,6               | o. 52,6           | 1. 16. 20                | o. 2. 46. 54,3              | o. 45,0           |
| 1. 0. 30                 | o. 1. 23. 55,2          | o. 59,0          | 1. 8. 30                | o. 2. 8. 37,2               | o. 52,5           | 1. 16. 30                | o. 2. 47. 39,3              | o. 44,9           |
| 1. 0. 40                 | o. 1. 24. 54,2          | o. 58,8          | 1. 8. 40                | o. 2. 9. 29,7               | o. 52,3           | 1. 16. 40                | o. 2. 48. 24,2              | o. 44,7           |
| 1. 0. 50                 | o. 1. 25. 53,0          | o. 58,7          | 1. 8. 50                | o. 2. 10. 22,0              | o. 52,1           | 1. 16. 50                | o. 2. 49. 8,9               | o. 44,5           |
| 1. 1. 0                  | o. 1. 26. 51,7          | o. 58,6          | 1. 9. 0                 | o. 2. 11. 14,1              | o. 52,0           | 1. 17. 0                 | o. 2. 49. 53,4              | o. 44,4           |
| 1. 1. 10                 | o. 1. 27. 50,3          | o. 58,5          | 1. 9. 10                | o. 2. 12. 6,1               | o. 51,8           | 1. 17. 10                | o. 2. 50. 37,8              | o. 44,2           |
| 1. 1. 20                 | o. 1. 28. 48,8          | o. 58,4          | 1. 9. 20                | o. 2. 12. 57,9              | o. 51,7           | 1. 17. 20                | o. 2. 51. 22,0              | o. 44,0           |
| 1. 1. 30                 | o. 1. 29. 47,2          | o. 58,2          | 1. 9. 30                | o. 2. 13. 49,6              | o. 51,6           | 1. 17. 30                | o. 2. 52. 6,0               | o. 43,8           |
| 1. 1. 40                 | o. 1. 30. 45,4          | o. 58,1          | 1. 9. 40                | o. 2. 14. 41,2              | o. 51,4           | 1. 17. 40                | o. 2. 52. 49,8              | o. 43,7           |
| 1. 1. 50                 | o. 1. 31. 43,5          | o. 58,0          | 1. 9. 50                | o. 2. 15. 32,6              | o. 51,2           | 1. 17. 50                | o. 2. 53. 33,5              | o. 43,5           |
| 1. 2. 0                  | o. 1. 32. 41,5          |                  | 1. 10. 0                | o. 2. 16. 23,8              |                   | 1. 18. 0                 | o. 2. 54. 17,0              |                   |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|                          | Equation.                   | Diff.   |                          | Equation.                   | Diff.   |                         | Equation.                   | Diff.   |
|--------------------------|-----------------------------|---------|--------------------------|-----------------------------|---------|-------------------------|-----------------------------|---------|
| <sup>s</sup><br>1. 18. 0 | <sup>s</sup> 0. 2. 54. 17,0 | 0. 43,3 | <sup>s</sup><br>1. 26. 0 | <sup>s</sup> 0. 3. 25. 38,8 | 0. 34,8 | <sup>s</sup><br>2. 4. 0 | <sup>s</sup> 0. 3. 49. 57,7 | 0. 25,7 |
| 1. 18. 10                | 0. 2. 55. 0,3               | 0. 43,2 | 1. 26. 10                | 0. 3. 26. 13,6              | 0. 34,6 | 2. 4. 10                | 0. 3. 50. 23,4              | 0. 25,5 |
| 1. 18. 20                | 0. 2. 55. 43,5              | 0. 43,0 | 1. 26. 20                | 0. 3. 26. 48,2              | 0. 34,4 | 2. 4. 20                | 0. 3. 50. 48,9              | 0. 25,3 |
| 1. 18. 30                | 0. 2. 56. 26,5              | 0. 42,8 | 1. 26. 30                | 0. 3. 27. 22,6              | 0. 34,2 | 2. 4. 30                | 0. 3. 51. 14,2              | 0. 25,2 |
| 1. 18. 40                | 0. 2. 57. 9,3               | 0. 42,6 | 1. 26. 40                | 0. 3. 27. 56,8              | 0. 34,1 | 2. 4. 40                | 0. 3. 51. 39,4              | 0. 25,0 |
| 1. 18. 50                | 0. 2. 57. 51,9              | 0. 42,5 | 1. 26. 50                | 0. 3. 28. 30,9              | 0. 33,9 | 2. 4. 50                | 0. 3. 52. 4,4               | 0. 24,8 |
| 1. 19. 0                 | 0. 2. 58. 34,4              | 0. 42,3 | 1. 27. 0                 | 0. 3. 29. 4,8               | 0. 33,7 | 2. 5. 0                 | 0. 3. 52. 29,2              | 0. 24,6 |
| 1. 19. 10                | 0. 2. 59. 16,7              | 0. 42,1 | 1. 27. 10                | 0. 3. 29. 38,5              | 0. 33,5 | 2. 5. 10                | 0. 3. 52. 53,8              | 0. 24,4 |
| 1. 19. 20                | 0. 2. 59. 58,8              | 0. 42,0 | 1. 27. 20                | 0. 3. 30. 12,0              | 0. 33,3 | 2. 5. 20                | 0. 3. 53. 18,2              | 0. 24,2 |
| 1. 19. 30                | 0. 3. 0. 40,8               | 0. 41,8 | 1. 27. 30                | 0. 3. 30. 45,3              | 0. 33,1 | 2. 5. 30                | 0. 3. 53. 42,4              | 0. 24,0 |
| 1. 19. 40                | 0. 3. 1. 22,6               | 0. 41,6 | 1. 27. 40                | 0. 3. 31. 18,4              | 0. 33,0 | 2. 5. 40                | 0. 3. 54. 6,4               | 0. 23,8 |
| 1. 19. 50                | 0. 3. 2. 4,2                | 0. 41,4 | 1. 27. 50                | 0. 3. 31. 51,4              | 0. 32,8 | 2. 5. 50                | 0. 3. 54. 30,2              | 0. 23,6 |
| 1. 20. 0                 | 0. 3. 2. 45,6               | 0. 41,3 | 1. 28. 0                 | 0. 3. 32. 24,2              | 0. 32,6 | 2. 6. 0                 | 0. 3. 54. 53,8              | 0. 23,4 |
| 1. 20. 10                | 0. 3. 3. 26,9               | 0. 41,1 | 1. 28. 10                | 0. 3. 32. 56,8              | 0. 32,4 | 2. 6. 10                | 0. 3. 55. 17,2              | 0. 23,2 |
| 1. 20. 20                | 0. 3. 4. 8,0                | 0. 40,9 | 1. 28. 20                | 0. 3. 33. 29,2              | 0. 32,2 | 2. 6. 20                | 0. 3. 55. 40,4              | 0. 23,0 |
| 1. 20. 30                | 0. 3. 4. 48,9               | 0. 40,7 | 1. 28. 30                | 0. 3. 34. 1,4               | 0. 32,0 | 2. 6. 30                | 0. 3. 56. 3,4               | 0. 22,8 |
| 1. 20. 40                | 0. 3. 5. 29,6               | 0. 40,6 | 1. 28. 40                | 0. 3. 34. 33,4              | 0. 31,8 | 2. 6. 40                | 0. 3. 56. 26,2              | 0. 22,7 |
| 1. 20. 50                | 0. 3. 6. 10,2               | 0. 40,4 | 1. 28. 50                | 0. 3. 35. 5,2               | 0. 31,6 | 2. 6. 50                | 0. 3. 56. 48,9              | 0. 22,5 |
| 1. 21. 0                 | 0. 3. 6. 50,6               | 0. 40,2 | 1. 29. 0                 | 0. 3. 35. 36,8              | 0. 31,4 | 2. 7. 0                 | 0. 3. 57. 11,4              | 0. 22,3 |
| 1. 21. 10                | 0. 3. 7. 30,8               | 0. 40,0 | 1. 29. 10                | 0. 3. 36. 8,2               | 0. 31,3 | 2. 7. 10                | 0. 3. 57. 33,7              | 0. 22,1 |
| 1. 21. 20                | 0. 3. 8. 10,8               | 0. 39,9 | 1. 29. 20                | 0. 3. 36. 39,5              | 0. 31,1 | 2. 7. 20                | 0. 3. 57. 55,8              | 0. 21,8 |
| 1. 21. 30                | 0. 3. 8. 50,7               | 0. 39,7 | 1. 29. 30                | 0. 3. 37. 10,6              | 0. 30,9 | 2. 7. 30                | 0. 3. 58. 17,6              | 0. 21,7 |
| 1. 21. 40                | 0. 3. 9. 30,4               | 0. 39,5 | 1. 29. 40                | 0. 3. 37. 41,5              | 0. 30,7 | 2. 7. 40                | 0. 3. 58. 39,3              | 0. 21,4 |
| 1. 21. 50                | 0. 3. 10. 9,9               | 0. 39,3 | 1. 29. 50                | 0. 3. 38. 12,2              | 0. 30,5 | 2. 7. 50                | 0. 3. 59. 0,7               | 0. 21,3 |
| 1. 22. 0                 | 0. 3. 10. 49,2              | 0. 39,1 | 2. 0. 0                  | 0. 3. 38. 42,7              | 0. 30,3 | 2. 8. 0                 | 0. 3. 59. 22,0              | 0. 21,1 |
| 1. 22. 10                | 0. 3. 11. 28,3              | 0. 39,0 | 2. 0. 10                 | 0. 3. 39. 13,0              | 0. 30,1 | 2. 8. 10                | 0. 3. 59. 43,1              | 0. 20,9 |
| 1. 22. 20                | 0. 3. 12. 7,3               | 0. 38,8 | 2. 0. 20                 | 0. 3. 39. 43,1              | 0. 29,9 | 2. 8. 20                | 0. 4. 0. 4,0                | 0. 20,7 |
| 1. 22. 30                | 0. 3. 12. 46,1              | 0. 38,6 | 2. 0. 30                 | 0. 3. 40. 13,0              | 0. 29,7 | 2. 8. 30                | 0. 4. 0. 24,7               | 0. 20,5 |
| 1. 22. 40                | 0. 3. 13. 24,7              | 0. 38,4 | 2. 0. 40                 | 0. 3. 40. 42,7              | 0. 29,6 | 2. 8. 40                | 0. 4. 0. 45,2               | 0. 20,3 |
| 1. 22. 50                | 0. 3. 14. 3,1               | 0. 38,3 | 2. 0. 50                 | 0. 3. 41. 12,3              | 0. 29,4 | 2. 8. 50                | 0. 4. 1. 5,5                | 0. 20,1 |
| 1. 23. 0                 | 0. 3. 14. 41,4              | 0. 38,1 | 2. 1. 0                  | 0. 3. 41. 41,7              | 0. 29,2 | 2. 9. 0                 | 0. 4. 1. 25,6               | 0. 19,9 |
| 1. 23. 10                | 0. 3. 15. 19,5              | 0. 37,9 | 2. 1. 10                 | 0. 3. 42. 10,9              | 0. 29,0 | 2. 9. 10                | 0. 4. 1. 45,5               | 0. 19,7 |
| 1. 23. 20                | 0. 3. 15. 57,4              | 0. 37,7 | 2. 1. 20                 | 0. 3. 42. 39,9              | 0. 28,8 | 2. 9. 20                | 0. 4. 2. 5,2                | 0. 19,6 |
| 1. 23. 30                | 0. 3. 16. 35,1              | 0. 37,5 | 2. 1. 30                 | 0. 3. 43. 8,7               | 0. 28,6 | 2. 9. 30                | 0. 4. 2. 24,8               | 0. 19,3 |
| 1. 23. 40                | 0. 3. 17. 12,6              | 0. 37,3 | 2. 1. 40                 | 0. 3. 43. 37,3              | 0. 28,4 | 2. 9. 40                | 0. 4. 2. 44,1               | 0. 19,1 |
| 1. 23. 50                | 0. 3. 17. 49,9              | 0. 37,2 | 2. 1. 50                 | 0. 3. 44. 5,7               | 0. 28,2 | 2. 9. 50                | 0. 4. 3. 3,2                | 0. 19,0 |
| 1. 24. 0                 | 0. 3. 18. 27,1              | 0. 37,0 | 2. 2. 0                  | 0. 3. 44. 33,9              | 0. 28,0 | 2. 10. 0                | 0. 4. 3. 22,2               | 0. 18,7 |
| 1. 24. 10                | 0. 3. 19. 4,1               | 0. 36,8 | 2. 2. 10                 | 0. 3. 45. 1,9               | 0. 27,9 | 2. 10. 10               | 0. 4. 3. 40,9               | 0. 18,6 |
| 1. 24. 20                | 0. 3. 19. 40,9              | 0. 36,6 | 2. 2. 20                 | 0. 3. 45. 29,8              | 0. 27,7 | 2. 10. 20               | 0. 4. 3. 59,5               | 0. 18,4 |
| 1. 24. 30                | 0. 3. 20. 17,5              | 0. 36,4 | 2. 2. 30                 | 0. 3. 45. 57,5              | 0. 27,4 | 2. 10. 30               | 0. 4. 4. 17,9               | 0. 18,2 |
| 1. 24. 40                | 0. 3. 20. 53,9              | 0. 36,3 | 2. 2. 40                 | 0. 3. 46. 24,9              | 0. 27,3 | 2. 10. 40               | 0. 4. 4. 36,1               | 0. 17,9 |
| 1. 24. 50                | 0. 3. 21. 30,2              | 0. 36,1 | 2. 2. 50                 | 0. 3. 46. 52,2              | 0. 27,1 | 2. 10. 50               | 0. 4. 4. 54,0               | 0. 17,7 |
| 1. 25. 0                 | 0. 3. 22. 6,3               | 0. 35,9 | 2. 3. 0                  | 0. 3. 47. 19,3              | 0. 26,9 | 2. 11. 0                | 0. 4. 5. 11,7               | 0. 17,6 |
| 1. 25. 10                | 0. 3. 22. 42,2              | 0. 35,7 | 2. 3. 10                 | 0. 3. 47. 46,2              | 0. 26,7 | 2. 11. 10               | 0. 4. 5. 29,3               | 0. 17,4 |
| 1. 25. 20                | 0. 3. 23. 17,9              | 0. 35,5 | 2. 3. 20                 | 0. 3. 48. 12,9              | 0. 26,5 | 2. 11. 20               | 0. 4. 5. 46,7               | 0. 17,1 |
| 1. 25. 30                | 0. 3. 23. 53,4              | 0. 35,3 | 2. 3. 30                 | 0. 3. 48. 39,4              | 0. 26,3 | 2. 11. 30               | 0. 4. 6. 3,8                | 0. 17,0 |
| 1. 25. 40                | 0. 3. 24. 28,7              | 0. 35,1 | 2. 3. 40                 | 0. 3. 49. 5,7               | 0. 26,1 | 2. 11. 40               | 0. 4. 6. 20,8               | 0. 16,8 |
| 1. 25. 50                | 0. 3. 25. 3,8               | 0. 35,0 | 2. 3. 50                 | 0. 3. 49. 31,8              | 0. 25,9 | 2. 11. 50               | 0. 4. 6. 37,6               | 0. 16,6 |
| 1. 26. 0                 | 0. 3. 25. 38,8              |         | 2. 4. 0                  | 0. 3. 49. 57,7              |         | 2. 12. 0                | 0. 4. 6. 54,2               |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|                                     | Equation.                           | Diff.             |                            | Equation.                           | Diff.             |                            | Equation.                           | Diff.             |
|-------------------------------------|-------------------------------------|-------------------|----------------------------|-------------------------------------|-------------------|----------------------------|-------------------------------------|-------------------|
| <i>s</i> <i>o</i> <i>'</i> <i>"</i> | <i>s</i> <i>o</i> <i>'</i> <i>"</i> | <i>'</i> <i>"</i> | <i>s</i> <i>o</i> <i>'</i> | <i>s</i> <i>o</i> <i>'</i> <i>"</i> | <i>'</i> <i>"</i> | <i>s</i> <i>o</i> <i>'</i> | <i>s</i> <i>o</i> <i>'</i> <i>"</i> | <i>'</i> <i>"</i> |
| 2. 12. 0                            | o. 4. 6. 54,2                       | o. 16,4           | 2. 20. 0                   | o. 4. 16. 19,5                      | o. 7,0            | 2. 28. 0                   | o. 4. 18. 15,3                      | o. 2,3            |
| 2. 12. 10                           | o. 4. 7. 10,6                       | o. 16,2           | 2. 20. 10                  | o. 4. 16. 26,5                      | o. 6,8            | 2. 28. 10                  | o. 4. 18. 13,0                      | o. 2,5            |
| 2. 12. 20                           | o. 4. 7. 26,8                       | o. 16,0           | 2. 20. 20                  | o. 4. 16. 33,3                      | o. 6,5            | 2. 28. 20                  | o. 4. 18. 10,5                      | o. 2,7            |
| 2. 12. 30                           | o. 4. 7. 42,8                       | o. 15,8           | 2. 20. 30                  | o. 4. 16. 39,8                      | o. 6,4            | 2. 28. 30                  | o. 4. 18. 7,8                       | o. 2,9            |
| 2. 12. 40                           | o. 4. 7. 58,6                       | o. 15,6           | 2. 20. 40                  | o. 4. 16. 46,2                      | o. 6,2            | 2. 28. 40                  | o. 4. 18. 4,9                       | o. 3,0            |
| 2. 12. 50                           | o. 4. 8. 14,2                       | o. 15,4           | 2. 20. 50                  | o. 4. 16. 52,4                      | o. 6,0            | 2. 28. 50                  | o. 4. 18. 1,9                       | o. 3,3            |
| 2. 13. 0                            | o. 4. 8. 29,6                       | o. 15,2           | 2. 21. 0                   | o. 4. 16. 58,4                      | o. 5,8            | 2. 29. 0                   | o. 4. 17. 58,6                      | o. 3,5            |
| 2. 13. 10                           | o. 4. 8. 44,8                       | o. 15,0           | 2. 21. 10                  | o. 4. 17. 4,2                       | o. 5,6            | 2. 29. 10                  | o. 4. 17. 55,1                      | o. 3,7            |
| 2. 13. 20                           | o. 4. 8. 59,8                       | o. 14,8           | 2. 21. 20                  | o. 4. 17. 9,8                       | o. 5,4            | 2. 29. 20                  | o. 4. 17. 51,4                      | o. 3,8            |
| 2. 13. 30                           | o. 4. 9. 14,6                       | o. 14,6           | 2. 21. 30                  | o. 4. 17. 15,2                      | o. 5,2            | 2. 29. 30                  | o. 4. 17. 47,6                      | o. 4,0            |
| 2. 13. 40                           | o. 4. 9. 29,2                       | o. 14,4           | 2. 21. 40                  | o. 4. 17. 20,4                      | o. 5,0            | 2. 29. 40                  | o. 4. 17. 43,6                      | o. 4,2            |
| 2. 13. 50                           | o. 4. 9. 43,6                       | o. 14,3           | 2. 21. 50                  | o. 4. 17. 25,4                      | o. 4,8            | 2. 29. 50                  | o. 4. 17. 39,4                      | o. 4,4            |
| 2. 14. 0                            | o. 4. 9. 57,9                       | o. 14,1           | 2. 22. 0                   | o. 4. 17. 30,2                      | o. 4,7            | 3. 0. 0                    | o. 4. 17. 35,0                      | o. 4,6            |
| 2. 14. 10                           | o. 4. 10. 12,0                      | o. 13,8           | 2. 22. 10                  | o. 4. 17. 34,9                      | o. 4,5            | 3. 0. 10                   | o. 4. 17. 30,4                      | o. 4,8            |
| 2. 14. 20                           | o. 4. 10. 25,8                      | o. 13,7           | 2. 22. 20                  | o. 4. 17. 39,4                      | o. 4,2            | 3. 0. 20                   | o. 4. 17. 25,6                      | o. 5,0            |
| 2. 14. 30                           | o. 4. 10. 39,5                      | o. 13,4           | 2. 22. 30                  | o. 4. 17. 43,6                      | o. 4,1            | 3. 0. 30                   | o. 4. 17. 20,6                      | o. 5,2            |
| 2. 14. 40                           | o. 4. 10. 52,9                      | o. 13,3           | 2. 22. 40                  | o. 4. 17. 47,7                      | o. 3,8            | 3. 0. 40                   | o. 4. 17. 15,4                      | o. 5,3            |
| 2. 14. 50                           | o. 4. 11. 6,2                       | o. 13,0           | 2. 22. 50                  | o. 4. 17. 51,5                      | o. 3,7            | 3. 0. 50                   | o. 4. 17. 10,1                      | o. 5,5            |
| 2. 15. 0                            | o. 4. 11. 19,2                      | o. 12,8           | 2. 23. 0                   | o. 4. 17. 55,2                      | o. 3,5            | 3. 1. 0                    | o. 4. 17. 4,6                       | o. 5,7            |
| 2. 15. 10                           | o. 4. 11. 32,0                      | o. 12,7           | 2. 23. 10                  | o. 4. 17. 58,7                      | o. 3,2            | 3. 1. 10                   | o. 4. 16. 58,9                      | o. 5,9            |
| 2. 15. 20                           | o. 4. 11. 44,7                      | o. 12,5           | 2. 23. 20                  | o. 4. 18. 1,9                       | o. 3,1            | 3. 1. 20                   | o. 4. 16. 53,0                      | o. 6,1            |
| 2. 15. 30                           | o. 4. 11. 57,2                      | o. 12,2           | 2. 23. 30                  | o. 4. 18. 5,0                       | o. 2,9            | 3. 1. 30                   | o. 4. 16. 46,9                      | o. 6,3            |
| 2. 15. 40                           | o. 4. 12. 9,4                       | o. 12,0           | 2. 23. 40                  | o. 4. 18. 7,9                       | o. 2,7            | 3. 1. 40                   | o. 4. 16. 40,6                      | o. 6,5            |
| 2. 15. 50                           | o. 4. 12. 21,4                      | o. 11,9           | 2. 23. 50                  | o. 4. 18. 10,6                      | o. 2,5            | 3. 1. 50                   | o. 4. 16. 34,1                      | o. 6,7            |
| 2. 16. 0                            | o. 4. 12. 33,3                      | o. 11,7           | 2. 24. 0                   | o. 4. 18. 13,1                      | o. 2,3            | 3. 2. 0                    | o. 4. 16. 27,4                      | o. 6,8            |
| 2. 16. 10                           | o. 4. 12. 45,0                      | o. 11,5           | 2. 24. 10                  | o. 4. 18. 15,4                      | o. 2,1            | 3. 2. 10                   | o. 4. 16. 20,6                      | o. 7,0            |
| 2. 16. 20                           | o. 4. 12. 56,5                      | o. 11,3           | 2. 24. 20                  | o. 4. 18. 17,5                      | o. 2,0            | 3. 2. 20                   | o. 4. 16. 13,6                      | o. 7,2            |
| 2. 16. 30                           | o. 4. 13. 7,8                       | o. 11,1           | 2. 24. 30                  | o. 4. 18. 19,5                      | o. 1,7            | 3. 2. 30                   | o. 4. 16. 6,4                       | o. 7,4            |
| 2. 16. 40                           | o. 4. 13. 18,9                      | o. 10,9           | 2. 24. 40                  | o. 4. 18. 21,2                      | o. 1,5            | 3. 2. 40                   | o. 4. 15. 59,0                      | o. 7,6            |
| 2. 16. 50                           | o. 4. 13. 29,8                      | o. 10,7           | 2. 24. 50                  | o. 4. 18. 22,7                      | o. 1,4            | 3. 2. 50                   | o. 4. 15. 51,4                      | o. 7,8            |
| 2. 17. 0                            | o. 4. 13. 40,5                      | o. 10,5           | 2. 25. 0                   | o. 4. 18. 24,1                      | o. 1,2            | 3. 3. 0                    | o. 4. 15. 43,6                      | o. 8,0            |
| 2. 17. 10                           | o. 4. 13. 51,0                      | o. 10,3           | 2. 25. 10                  | o. 4. 18. 25,3                      | o. 1,0            | 3. 3. 10                   | o. 4. 15. 35,6                      | o. 8,1            |
| 2. 17. 20                           | o. 4. 14. 1,3                       | o. 10,1           | 2. 25. 20                  | o. 4. 18. 26,3                      | o. 0,7            | 3. 3. 20                   | o. 4. 15. 27,5                      | o. 8,4            |
| 2. 17. 30                           | o. 4. 14. 11,4                      | o. 10,0           | 2. 25. 30                  | o. 4. 18. 27,0                      | o. 0,5            | 3. 3. 30                   | o. 4. 15. 19,1                      | o. 8,5            |
| 2. 17. 40                           | o. 4. 14. 21,4                      | o. 9,7            | 2. 25. 40                  | o. 4. 18. 27,5                      | o. 0,4            | 3. 3. 40                   | o. 4. 15. 10,6                      | o. 8,7            |
| 2. 17. 50                           | o. 4. 14. 31,1                      | o. 9,5            | 2. 25. 50                  | o. 4. 18. 27,9                      | o. 0,2            | 3. 3. 50                   | o. 4. 15. 1,9                       | o. 8,9            |
| 2. 18. 0                            | o. 4. 14. 40,6                      | o. 9,3            | 2. 26. 0                   | o. 4. 18. 28,1                      | o. 0,0            | 3. 4. 0                    | o. 4. 14. 53,0                      | o. 9,1            |
| 2. 18. 10                           | o. 4. 14. 49,9                      | o. 9,2            | 2. 26. 10                  | o. 4. 18. 28,1                      | o. 0,2            | 3. 4. 10                   | o. 4. 14. 43,9                      | o. 9,3            |
| 2. 18. 20                           | o. 4. 14. 59,1                      | o. 8,9            | 2. 26. 20                  | o. 4. 18. 27,9                      | o. 0,4            | 3. 4. 20                   | o. 4. 14. 34,6                      | o. 9,4            |
| 2. 18. 30                           | o. 4. 15. 8,0                       | o. 8,7            | 2. 26. 30                  | o. 4. 18. 27,5                      | o. 0,6            | 3. 4. 30                   | o. 4. 14. 25,2                      | o. 9,7            |
| 2. 18. 40                           | o. 4. 15. 16,7                      | o. 8,5            | 2. 26. 40                  | o. 4. 18. 26,9                      | o. 0,8            | 3. 4. 40                   | o. 4. 14. 15,5                      | o. 9,9            |
| 2. 18. 50                           | o. 4. 15. 25,2                      | o. 8,4            | 2. 26. 50                  | o. 4. 18. 26,1                      | o. 1,0            | 3. 4. 50                   | o. 4. 14. 5,6                       | o. 10,0           |
| 2. 19. 0                            | o. 4. 15. 33,6                      | o. 8,2            | 2. 27. 0                   | o. 4. 18. 25,1                      | o. 1,2            | 3. 5. 0                    | o. 4. 13. 55,6                      | o. 10,1           |
| 2. 19. 10                           | o. 4. 15. 41,8                      | o. 7,9            | 2. 27. 10                  | o. 4. 18. 23,9                      | o. 1,3            | 3. 5. 10                   | o. 4. 13. 45,5                      | o. 10,3           |
| 2. 19. 20                           | o. 4. 15. 49,7                      | o. 7,7            | 2. 27. 20                  | o. 4. 18. 22,6                      | o. 1,5            | 3. 5. 20                   | o. 4. 13. 35,2                      | o. 10,6           |
| 2. 19. 30                           | o. 4. 15. 57,4                      | o. 7,5            | 2. 27. 30                  | o. 4. 18. 21,1                      | o. 1,8            | 3. 5. 30                   | o. 4. 13. 24,6                      | o. 10,8           |
| 2. 19. 40                           | o. 4. 16. 4,9                       | o. 7,4            | 2. 27. 40                  | o. 4. 18. 19,3                      | o. 1,9            | 3. 5. 40                   | o. 4. 13. 13,8                      | o. 10,9           |
| 2. 19. 50                           | o. 4. 16. 12,3                      | o. 7,2            | 2. 27. 50                  | o. 4. 18. 17,4                      | o. 2,1            | 3. 5. 50                   | o. 4. 13. 2,9                       | o. 11,1           |
| 2. 20. 0                            | o. 4. 16. 19,5                      |                   | 2. 28. 0                   | o. 4. 18. 15,3                      |                   | 3. 6. 0                    | o. 4. 12. 51,8                      |                   |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.      | Diff.   |           | Equation.      | Diff.   |           | Equation.      | Diff.   |
|-----------|----------------|---------|-----------|----------------|---------|-----------|----------------|---------|
| s         | s              |         | s         | s              |         | s         | s              |         |
| 3. 6. 0   | o. 4. 12. 51,8 | o. 11,3 | 3. 14. 0  | o. 4. 0. 27,5  | o. 19,8 | 3. 22. 0  | o. 3. 41. 27,2 | o. 27,8 |
| 3. 6. 10  | o. 4. 12. 40,5 | o. 11,5 | 3. 14. 10 | o. 4. 0. 7,7   | o. 20,0 | 3. 22. 10 | o. 3. 40. 59,4 | o. 27,9 |
| 3. 6. 20  | o. 4. 12. 29,0 | o. 11,6 | 3. 14. 20 | o. 3. 59. 47,7 | o. 20,1 | 3. 22. 20 | o. 3. 40. 31,5 | o. 28,1 |
| 3. 6. 30  | o. 4. 12. 17,4 | o. 11,9 | 3. 14. 30 | o. 3. 59. 27,6 | o. 20,3 | 3. 22. 30 | o. 3. 40. 3,4  | o. 28,2 |
| 3. 6. 40  | o. 4. 12. 5,5  | o. 12,0 | 3. 14. 40 | o. 3. 59. 7,3  | o. 20,5 | 3. 22. 40 | o. 3. 39. 35,2 | o. 28,4 |
| 3. 6. 50  | o. 4. 11. 53,5 | o. 12,2 | 3. 14. 50 | o. 3. 58. 46,8 | o. 20,7 | 3. 22. 50 | o. 3. 39. 6,8  | o. 28,5 |
| 3. 7. 0   | o. 4. 11. 41,3 | o. 12,4 | 3. 15. 0  | o. 3. 58. 26,1 | o. 20,9 | 3. 23. 0  | o. 3. 38. 38,3 | o. 28,7 |
| 3. 7. 10  | o. 4. 11. 28,9 | o. 12,6 | 3. 15. 10 | o. 3. 58. 5,2  | o. 21,0 | 3. 23. 10 | o. 3. 38. 9,6  | o. 28,9 |
| 3. 7. 20  | o. 4. 11. 16,3 | o. 12,7 | 3. 15. 20 | o. 3. 57. 44,2 | o. 21,2 | 3. 23. 20 | o. 3. 37. 40,7 | o. 29,0 |
| 3. 7. 30  | o. 4. 11. 3,6  | o. 12,9 | 3. 15. 30 | o. 3. 57. 23,0 | o. 21,3 | 3. 23. 30 | o. 3. 37. 11,7 | o. 29,2 |
| 3. 7. 40  | o. 4. 10. 50,7 | o. 13,1 | 3. 15. 40 | o. 3. 57. 1,7  | o. 21,5 | 3. 23. 40 | o. 3. 36. 42,5 | o. 29,3 |
| 3. 7. 50  | o. 4. 10. 37,6 | o. 13,3 | 3. 15. 50 | o. 3. 56. 40,2 | o. 21,7 | 3. 23. 50 | o. 3. 36. 13,2 | o. 29,5 |
| 3. 8. 0   | o. 4. 10. 24,3 | o. 13,5 | 3. 16. 0  | o. 3. 56. 18,5 | o. 21,9 | 3. 24. 0  | o. 3. 35. 43,7 | o. 29,7 |
| 3. 8. 10  | o. 4. 10. 10,8 | o. 13,7 | 3. 16. 10 | o. 3. 55. 56,6 | o. 22,0 | 3. 24. 10 | o. 3. 35. 14,0 | o. 29,8 |
| 3. 8. 20  | o. 4. 9. 57,1  | o. 13,8 | 3. 16. 20 | o. 3. 55. 34,6 | o. 22,2 | 3. 24. 20 | o. 3. 34. 44,2 | o. 29,9 |
| 3. 8. 30  | o. 4. 9. 43,3  | o. 14,0 | 3. 16. 30 | o. 3. 55. 12,4 | o. 22,4 | 3. 24. 30 | o. 3. 34. 14,3 | o. 30,1 |
| 3. 8. 40  | o. 4. 9. 29,3  | o. 14,2 | 3. 16. 40 | o. 3. 54. 50,0 | o. 22,5 | 3. 24. 40 | o. 3. 33. 44,2 | o. 30,3 |
| 3. 8. 50  | o. 4. 9. 15,1  | o. 14,3 | 3. 16. 50 | o. 3. 54. 27,5 | o. 22,7 | 3. 24. 50 | o. 3. 33. 13,9 | o. 30,4 |
| 3. 9. 0   | o. 4. 9. 0,8   | o. 14,5 | 3. 17. 0  | o. 3. 54. 4,8  | o. 22,9 | 3. 25. 0  | o. 3. 32. 43,5 | o. 30,6 |
| 3. 9. 10  | o. 4. 8. 46,3  | o. 14,7 | 3. 17. 10 | o. 3. 53. 41,9 | o. 23,0 | 3. 25. 10 | o. 3. 32. 12,9 | o. 30,7 |
| 3. 9. 20  | o. 4. 8. 31,6  | o. 14,9 | 3. 17. 20 | o. 3. 53. 18,9 | o. 23,2 | 3. 25. 20 | o. 3. 31. 42,2 | o. 30,9 |
| 3. 9. 30  | o. 4. 8. 16,7  | o. 15,1 | 3. 17. 30 | o. 3. 52. 55,7 | o. 23,4 | 3. 25. 30 | o. 3. 31. 11,3 | o. 31,0 |
| 3. 9. 40  | o. 4. 8. 1,6   | o. 15,3 | 3. 17. 40 | o. 3. 52. 32,3 | o. 23,5 | 3. 25. 40 | o. 3. 30. 40,3 | o. 31,2 |
| 3. 9. 50  | o. 4. 7. 46,3  | o. 15,4 | 3. 17. 50 | o. 3. 52. 8,8  | o. 23,7 | 3. 25. 50 | o. 3. 30. 9,1  | o. 31,3 |
| 3. 10. 0  | o. 4. 7. 30,9  | o. 15,6 | 3. 18. 0  | o. 3. 51. 45,1 | o. 23,9 | 3. 26. 0  | o. 3. 29. 37,8 | o. 31,5 |
| 3. 10. 10 | o. 4. 7. 15,3  | o. 15,8 | 3. 18. 10 | o. 3. 51. 21,2 | o. 24,0 | 3. 26. 10 | o. 3. 29. 6,3  | o. 31,6 |
| 3. 10. 20 | o. 4. 6. 59,5  | o. 16,0 | 3. 18. 20 | o. 3. 50. 57,2 | o. 24,2 | 3. 26. 20 | o. 3. 28. 34,7 | o. 31,8 |
| 3. 10. 30 | o. 4. 6. 43,5  | o. 16,2 | 3. 18. 30 | o. 3. 50. 33,0 | o. 24,4 | 3. 26. 30 | o. 3. 28. 2,9  | o. 31,9 |
| 3. 10. 40 | o. 4. 6. 27,3  | o. 16,3 | 3. 18. 40 | o. 3. 50. 8,6  | o. 24,5 | 3. 26. 40 | o. 3. 27. 31,0 | o. 32,1 |
| 3. 10. 50 | o. 4. 6. 11,0  | o. 16,5 | 3. 18. 50 | o. 3. 49. 44,1 | o. 24,7 | 3. 26. 50 | o. 3. 26. 58,9 | o. 32,2 |
| 3. 11. 0  | o. 4. 5. 54,5  | o. 16,7 | 3. 19. 0  | o. 3. 49. 19,4 | o. 24,9 | 3. 27. 0  | o. 3. 26. 26,7 | o. 32,4 |
| 3. 11. 10 | o. 4. 5. 37,8  | o. 16,9 | 3. 19. 10 | o. 3. 48. 54,5 | o. 25,0 | 3. 27. 10 | o. 3. 25. 54,3 | o. 32,6 |
| 3. 11. 20 | o. 4. 5. 20,9  | o. 17,0 | 3. 19. 20 | o. 3. 48. 29,5 | o. 25,2 | 3. 27. 20 | o. 3. 25. 21,7 | o. 32,7 |
| 3. 11. 30 | o. 4. 5. 3,9   | o. 17,2 | 3. 19. 30 | o. 3. 48. 4,3  | o. 25,3 | 3. 27. 30 | o. 3. 24. 49,0 | o. 32,8 |
| 3. 11. 40 | o. 4. 4. 46,7  | o. 17,4 | 3. 19. 40 | o. 3. 47. 39,0 | o. 25,5 | 3. 27. 40 | o. 3. 24. 16,2 | o. 33,0 |
| 3. 11. 50 | o. 4. 4. 29,3  | o. 17,5 | 3. 19. 50 | o. 3. 47. 13,5 | o. 25,7 | 3. 27. 50 | o. 3. 23. 43,2 | o. 33,1 |
| 3. 12. 0  | o. 4. 4. 11,8  | o. 17,7 | 3. 20. 0  | o. 3. 46. 47,8 | o. 25,8 | 3. 28. 0  | o. 3. 23. 10,1 | o. 33,3 |
| 3. 12. 10 | o. 4. 3. 54,1  | o. 17,9 | 3. 20. 10 | o. 3. 46. 22,0 | o. 26,0 | 3. 28. 10 | o. 3. 22. 36,8 | o. 33,4 |
| 3. 12. 20 | o. 4. 3. 36,2  | o. 18,1 | 3. 20. 20 | o. 3. 45. 56,0 | o. 26,2 | 3. 28. 20 | o. 3. 22. 3,4  | o. 33,5 |
| 3. 12. 30 | o. 4. 3. 18,1  | o. 18,3 | 3. 20. 30 | o. 3. 45. 29,8 | o. 26,3 | 3. 28. 30 | o. 3. 21. 29,9 | o. 33,7 |
| 3. 12. 40 | o. 4. 2. 59,8  | o. 18,4 | 3. 20. 40 | o. 3. 45. 3,5  | o. 26,5 | 3. 28. 40 | o. 3. 20. 56,2 | o. 33,9 |
| 3. 12. 50 | o. 4. 2. 41,4  | o. 18,6 | 3. 20. 50 | o. 3. 44. 37,0 | o. 26,6 | 3. 28. 50 | o. 3. 20. 22,3 | o. 34,0 |
| 3. 13. 0  | o. 4. 2. 22,8  | o. 18,8 | 3. 21. 0  | o. 3. 44. 10,4 | o. 26,8 | 3. 29. 0  | o. 3. 19. 48,3 | o. 34,2 |
| 3. 13. 10 | o. 4. 2. 4,0   | o. 19,0 | 3. 21. 10 | o. 3. 43. 43,6 | o. 27,0 | 3. 29. 10 | o. 3. 19. 14,1 | o. 34,3 |
| 3. 13. 20 | o. 4. 1. 45,0  | o. 19,1 | 3. 21. 20 | o. 3. 43. 16,6 | o. 27,1 | 3. 29. 20 | o. 3. 18. 39,8 | o. 34,4 |
| 3. 13. 30 | o. 4. 1. 25,9  | o. 19,3 | 3. 21. 30 | o. 3. 42. 49,5 | o. 27,3 | 3. 29. 30 | o. 3. 18. 5,4  | o. 34,6 |
| 3. 13. 40 | o. 4. 1. 6,6   | o. 19,5 | 3. 21. 40 | o. 3. 42. 22,2 | o. 27,4 | 3. 29. 40 | o. 3. 17. 30,8 | o. 34,7 |
| 3. 13. 50 | o. 4. 0. 47,1  | o. 19,6 | 3. 21. 50 | o. 3. 41. 54,8 | o. 27,6 | 3. 29. 50 | o. 3. 16. 56,1 | o. 34,9 |
| 3. 14. 0  | o. 4. 0. 27,5  |         | 3. 22. 0  | o. 3. 41. 27,2 |         | 4. 0. 0   | o. 3. 16. 21,2 |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|          | Equation.      | Diff.   |           | Equation.      | Diff.   |           | Equation.      | Diff.   |
|----------|----------------|---------|-----------|----------------|---------|-----------|----------------|---------|
| s o ' "  | s o ' "        |         | s o ' "   | s o ' "        |         | s o ' "   | s o ' "        |         |
| 4. 0. 0  | o. 3. 16. 21,2 | o. 35,0 | 4. 8. 0   | o. 2. 45. 44,3 | o. 41,5 | 4. 16. 0  | o. 2. 10. 14,9 | o. 47,2 |
| 4. 0. 10 | o. 3. 15. 46,2 | o. 35,2 | 4. 8. 10  | o. 2. 45. 2,8  | o. 41,6 | 4. 16. 10 | o. 2. 9. 27,7  | o. 47,3 |
| 4. 0. 20 | o. 3. 15. 11,0 | o. 35,3 | 4. 8. 20  | o. 2. 44. 21,2 | o. 41,8 | 4. 16. 20 | o. 2. 8. 40,4  | o. 47,4 |
| 4. 0. 30 | o. 3. 14. 35,7 | o. 35,5 | 4. 8. 30  | o. 2. 43. 39,4 | o. 41,9 | 4. 16. 30 | o. 2. 7. 53,0  | o. 47,5 |
| 4. 0. 40 | o. 3. 14. 0,2  | o. 35,6 | 4. 8. 40  | o. 2. 42. 57,5 | o. 42,0 | 4. 16. 40 | o. 2. 7. 5,5   | o. 47,6 |
| 4. 0. 50 | o. 3. 13. 24,6 | o. 35,7 | 4. 8. 50  | o. 2. 42. 15,5 | o. 42,2 | 4. 16. 50 | o. 2. 6. 17,9  | o. 47,7 |
| 4. 1. 0  | o. 3. 12. 48,9 | o. 35,9 | 4. 9. 0   | o. 2. 41. 33,3 | o. 42,3 | 4. 17. 0  | o. 2. 5. 30,2  | o. 47,8 |
| 4. 1. 10 | o. 3. 12. 13,0 | o. 36,0 | 4. 9. 10  | o. 2. 40. 51,0 | o. 42,4 | 4. 17. 10 | o. 2. 4. 42,4  | o. 47,9 |
| 4. 1. 20 | o. 3. 11. 37,0 | o. 36,1 | 4. 9. 20  | o. 2. 40. 8,6  | o. 42,5 | 4. 17. 20 | o. 2. 3. 54,5  | o. 48,0 |
| 4. 1. 30 | o. 3. 11. 0,9  | o. 36,3 | 4. 9. 30  | o. 2. 39. 26,1 | o. 42,6 | 4. 17. 30 | o. 2. 3. 6,5   | o. 48,2 |
| 4. 1. 40 | o. 3. 10. 24,6 | o. 36,4 | 4. 9. 40  | o. 2. 38. 43,5 | o. 42,8 | 4. 17. 40 | o. 2. 2. 18,3  | o. 48,3 |
| 4. 1. 50 | o. 3. 9. 48,2  | o. 36,6 | 4. 9. 50  | o. 2. 38. 0,7  | o. 42,9 | 4. 17. 50 | o. 2. 1. 30,0  | o. 48,4 |
| 4. 2. 0  | o. 3. 9. 11,6  | o. 36,7 | 4. 10. 0  | o. 2. 37. 17,8 | o. 43,0 | 4. 18. 0  | o. 2. 0. 41,6  | o. 48,4 |
| 4. 2. 10 | o. 3. 8. 34,9  | o. 36,9 | 4. 10. 10 | o. 2. 36. 34,8 | o. 43,1 | 4. 18. 10 | o. 1. 59. 53,2 | o. 48,5 |
| 4. 2. 20 | o. 3. 7. 58,0  | o. 37,0 | 4. 10. 20 | o. 2. 35. 51,7 | o. 43,3 | 4. 18. 20 | o. 1. 59. 4,7  | o. 48,7 |
| 4. 2. 30 | o. 3. 7. 21,0  | o. 37,1 | 4. 10. 30 | o. 2. 35. 8,4  | o. 43,4 | 4. 18. 30 | o. 1. 58. 16,0 | o. 48,8 |
| 4. 2. 40 | o. 3. 6. 43,9  | o. 37,3 | 4. 10. 40 | o. 2. 34. 25,0 | o. 43,5 | 4. 18. 40 | o. 1. 57. 27,2 | o. 48,9 |
| 4. 2. 50 | o. 3. 6. 6,6   | o. 37,4 | 4. 10. 50 | o. 2. 33. 41,5 | o. 43,6 | 4. 18. 50 | o. 1. 56. 38,3 | o. 49,0 |
| 4. 3. 0  | o. 3. 5. 29,2  | o. 37,6 | 4. 11. 0  | o. 2. 32. 57,9 | o. 43,7 | 4. 19. 0  | o. 1. 55. 49,3 | o. 49,1 |
| 4. 3. 10 | o. 3. 4. 51,6  | o. 37,7 | 4. 11. 10 | o. 2. 32. 14,2 | o. 43,9 | 4. 19. 10 | o. 1. 55. 0,2  | o. 49,2 |
| 4. 3. 20 | o. 3. 4. 13,9  | o. 37,8 | 4. 11. 20 | o. 2. 31. 30,3 | o. 44,0 | 4. 19. 20 | o. 1. 54. 11,0 | o. 49,3 |
| 4. 3. 30 | o. 3. 3. 36,1  | o. 38,0 | 4. 11. 30 | o. 2. 30. 46,3 | o. 44,1 | 4. 19. 30 | o. 1. 53. 21,7 | o. 49,4 |
| 4. 3. 40 | o. 3. 2. 58,1  | o. 38,1 | 4. 11. 40 | o. 2. 30. 2,2  | o. 44,2 | 4. 19. 40 | o. 1. 52. 32,3 | o. 49,5 |
| 4. 3. 50 | o. 3. 2. 20,0  | o. 38,2 | 4. 11. 50 | o. 2. 29. 18,0 | o. 44,3 | 4. 19. 50 | o. 1. 51. 42,8 | o. 49,6 |
| 4. 4. 0  | o. 3. 1. 41,8  | o. 38,4 | 4. 12. 0  | o. 2. 28. 33,7 | o. 44,4 | 4. 20. 0  | o. 1. 50. 53,2 | o. 49,7 |
| 4. 4. 10 | o. 3. 1. 3,4   | o. 38,5 | 4. 12. 10 | o. 2. 27. 49,3 | o. 44,6 | 4. 20. 10 | o. 1. 50. 3,5  | o. 49,8 |
| 4. 4. 20 | o. 3. 0. 24,9  | o. 38,6 | 4. 12. 20 | o. 2. 27. 4,7  | o. 44,7 | 4. 20. 20 | o. 1. 49. 13,7 | o. 49,8 |
| 4. 4. 30 | o. 2. 59. 46,3 | o. 38,8 | 4. 12. 30 | o. 2. 26. 20,0 | o. 44,8 | 4. 20. 30 | o. 1. 48. 23,9 | o. 49,9 |
| 4. 4. 40 | o. 2. 59. 7,5  | o. 38,9 | 4. 12. 40 | o. 2. 25. 35,2 | o. 44,9 | 4. 20. 40 | o. 1. 47. 34,0 | o. 50,1 |
| 4. 4. 50 | o. 2. 58. 28,6 | o. 39,0 | 4. 12. 50 | o. 2. 24. 50,3 | o. 45,0 | 4. 20. 50 | o. 1. 46. 43,9 | o. 50,2 |
| 4. 5. 0  | o. 2. 57. 49,6 | o. 39,2 | 4. 13. 0  | o. 2. 24. 5,3  | o. 45,1 | 4. 21. 0  | o. 1. 45. 53,7 | o. 50,3 |
| 4. 5. 10 | o. 2. 57. 10,4 | o. 39,3 | 4. 13. 10 | o. 2. 23. 20,2 | o. 45,3 | 4. 21. 10 | o. 1. 45. 3,4  | o. 50,4 |
| 4. 5. 20 | o. 2. 56. 31,1 | o. 39,4 | 4. 13. 20 | o. 2. 22. 34,9 | o. 45,4 | 4. 21. 20 | o. 1. 44. 13,0 | o. 50,5 |
| 4. 5. 30 | o. 2. 55. 51,7 | o. 39,6 | 4. 13. 30 | o. 2. 21. 49,5 | o. 45,5 | 4. 21. 30 | o. 1. 43. 22,5 | o. 50,6 |
| 4. 5. 40 | o. 2. 55. 12,1 | o. 39,7 | 4. 13. 40 | o. 2. 21. 4,0  | o. 45,6 | 4. 21. 40 | o. 1. 42. 31,9 | o. 50,7 |
| 4. 5. 50 | o. 2. 54. 32,4 | o. 39,8 | 4. 13. 50 | o. 2. 20. 18,4 | o. 45,8 | 4. 21. 50 | o. 1. 41. 41,2 | o. 50,8 |
| 4. 6. 0  | o. 2. 53. 52,6 | o. 40,0 | 4. 14. 0  | o. 2. 19. 32,6 | o. 45,9 | 4. 22. 0  | o. 1. 40. 50,4 | o. 50,9 |
| 4. 6. 10 | o. 2. 53. 12,6 | o. 40,1 | 4. 14. 10 | o. 2. 18. 46,7 | o. 46,0 | 4. 22. 10 | o. 1. 39. 59,5 | o. 51,0 |
| 4. 6. 20 | o. 2. 52. 32,5 | o. 40,3 | 4. 14. 20 | o. 2. 18. 0,7  | o. 46,1 | 4. 22. 20 | o. 1. 39. 8,5  | o. 51,0 |
| 4. 6. 30 | o. 2. 51. 52,2 | o. 40,4 | 4. 14. 30 | o. 2. 17. 14,6 | o. 46,2 | 4. 22. 30 | o. 1. 38. 17,5 | o. 51,1 |
| 4. 6. 40 | o. 2. 51. 11,8 | o. 40,5 | 4. 14. 40 | o. 2. 16. 28,4 | o. 46,4 | 4. 22. 40 | o. 1. 37. 26,4 | o. 51,1 |
| 4. 6. 50 | o. 2. 50. 31,3 | o. 40,6 | 4. 14. 50 | o. 2. 15. 42,0 | o. 46,4 | 4. 22. 50 | o. 1. 36. 35,3 | o. 51,3 |
| 4. 7. 0  | o. 2. 49. 50,7 | o. 40,7 | 4. 15. 0  | o. 2. 14. 55,6 | o. 46,5 | 4. 23. 0  | o. 1. 35. 44,0 | o. 51,4 |
| 4. 7. 10 | o. 2. 49. 10,0 | o. 40,9 | 4. 15. 10 | o. 2. 14. 9,1  | o. 46,6 | 4. 23. 10 | o. 1. 34. 52,6 | o. 51,5 |
| 4. 7. 20 | o. 2. 48. 29,1 | o. 41,0 | 4. 15. 20 | o. 2. 13. 22,5 | o. 46,7 | 4. 23. 20 | o. 1. 34. 1,1  | o. 51,6 |
| 4. 7. 30 | o. 2. 47. 48,1 | o. 41,1 | 4. 15. 30 | o. 2. 12. 35,8 | o. 46,8 | 4. 23. 30 | o. 1. 33. 9,5  | o. 51,7 |
| 4. 7. 40 | o. 2. 47. 7,0  | o. 41,3 | 4. 15. 40 | o. 2. 11. 49,0 | o. 47,0 | 4. 23. 40 | o. 1. 32. 17,8 | o. 51,8 |
| 4. 7. 50 | o. 2. 46. 25,7 | o. 41,4 | 4. 15. 50 | o. 2. 11. 2,0  | o. 47,1 | 4. 23. 50 | o. 1. 31. 26,0 | o. 51,9 |
| 4. 8. 0  | o. 2. 45. 44,3 |         | 4. 16. 0  | o. 2. 10. 14,9 |         | 4. 24. 0  | o. 1. 30. 34,1 |         |



## Continuation of TABLE XXXIII.

## Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.      | Diff.   |          | Equation.      | Diff.   |           | Equation.        | Diff.   |
|-----------|----------------|---------|----------|----------------|---------|-----------|------------------|---------|
| s o /     | s o /          | "       | s o /    | s o /          | "       | s o /     | s o /            | "       |
| 4. 24. 0  | 0. 1. 30. 34,1 | 0. 52,0 | 5. 2. 0  | 0. 0. 47. 25,1 | 0. 55,8 | 5. 10. 0  | 0. 0. 1. 32,6    | 0. 58,7 |
| 4. 24. 10 | 0. 1. 29. 42,1 | 0. 52,1 | 5. 2. 10 | 0. 0. 46. 29,3 | 0. 55,9 | 5. 10. 10 | 0. 0. 0. 33,9    | 0. 58,8 |
| 4. 24. 20 | 0. 1. 28. 50,0 | 0. 52,2 | 5. 2. 20 | 0. 0. 45. 33,4 | 0. 56,0 | 5. 10. 20 | 11. 29. 59. 35,1 | 0. 58,8 |
| 4. 24. 30 | 0. 1. 27. 57,8 | 0. 52,2 | 5. 2. 30 | 0. 0. 44. 37,4 | 0. 56,1 | 5. 10. 30 | 11. 29. 58. 36,3 | 0. 58,9 |
| 4. 24. 40 | 0. 1. 27. 5,6  | 0. 52,3 | 5. 2. 40 | 0. 0. 43. 41,3 | 0. 56,1 | 5. 10. 40 | 11. 29. 57. 37,4 | 0. 59,0 |
| 4. 24. 50 | 0. 1. 26. 13,3 | 0. 52,4 | 5. 2. 50 | 0. 0. 42. 45,2 | 0. 56,2 | 5. 10. 50 | 11. 29. 56. 38,4 | 0. 59,0 |
| 4. 25. 0  | 0. 1. 25. 20,9 | 0. 52,5 | 5. 3. 0  | 0. 0. 41. 49,0 | 0. 56,3 | 5. 11. 0  | 11. 29. 55. 39,4 | 0. 59,1 |
| 4. 25. 10 | 0. 1. 24. 28,4 | 0. 52,6 | 5. 3. 10 | 0. 0. 40. 52,7 | 0. 56,3 | 5. 11. 10 | 11. 29. 54. 40,3 | 0. 59,1 |
| 4. 25. 20 | 0. 1. 23. 35,8 | 0. 52,7 | 5. 3. 20 | 0. 0. 39. 56,4 | 0. 56,4 | 5. 11. 20 | 11. 29. 53. 41,2 | 0. 59,1 |
| 4. 25. 30 | 0. 1. 22. 43,1 | 0. 52,8 | 5. 3. 30 | 0. 0. 39. 0,0  | 0. 56,4 | 5. 11. 30 | 11. 29. 52. 42,1 | 0. 59,2 |
| 4. 25. 40 | 0. 1. 21. 50,3 | 0. 52,8 | 5. 3. 40 | 0. 0. 38. 3,6  | 0. 56,5 | 5. 11. 40 | 11. 29. 51. 42,9 | 0. 59,2 |
| 4. 25. 50 | 0. 1. 20. 57,5 | 0. 52,9 | 5. 3. 50 | 0. 0. 37. 7,1  | 0. 56,6 | 5. 11. 50 | 11. 29. 50. 43,7 | 0. 59,3 |
| 4. 26. 0  | 0. 1. 20. 4,6  | 0. 53,0 | 5. 4. 0  | 0. 0. 36. 10,5 | 0. 56,7 | 5. 12. 0  | 11. 29. 49. 44,4 | 0. 59,3 |
| 4. 26. 10 | 0. 1. 19. 11,6 | 0. 53,1 | 5. 4. 10 | 0. 0. 35. 13,8 | 0. 56,7 | 5. 12. 10 | 11. 29. 48. 45,1 | 0. 59,4 |
| 4. 26. 20 | 0. 1. 18. 18,5 | 0. 53,2 | 5. 4. 20 | 0. 0. 34. 17,1 | 0. 56,8 | 5. 12. 20 | 11. 29. 47. 45,7 | 0. 59,4 |
| 4. 26. 30 | 0. 1. 17. 25,3 | 0. 53,3 | 5. 4. 30 | 0. 0. 33. 20,3 | 0. 56,8 | 5. 12. 30 | 11. 29. 46. 46,3 | 0. 59,5 |
| 4. 26. 40 | 0. 1. 16. 32,0 | 0. 53,4 | 5. 4. 40 | 0. 0. 32. 23,5 | 0. 56,9 | 5. 12. 40 | 11. 29. 45. 46,8 | 0. 59,5 |
| 4. 26. 50 | 0. 1. 15. 38,6 | 0. 53,4 | 5. 4. 50 | 0. 0. 31. 26,6 | 0. 57,0 | 5. 12. 50 | 11. 29. 44. 47,3 | 0. 59,6 |
| 4. 27. 0  | 0. 1. 14. 45,2 | 0. 53,5 | 5. 5. 0  | 0. 0. 30. 29,6 | 0. 57,1 | 5. 13. 0  | 11. 29. 43. 47,7 | 0. 59,6 |
| 4. 27. 10 | 0. 1. 13. 51,7 | 0. 53,6 | 5. 5. 10 | 0. 0. 29. 32,5 | 0. 57,1 | 5. 13. 10 | 11. 29. 42. 48,1 | 0. 59,6 |
| 4. 27. 20 | 0. 1. 12. 58,1 | 0. 53,7 | 5. 5. 20 | 0. 0. 28. 35,4 | 0. 57,1 | 5. 13. 20 | 11. 29. 41. 48,5 | 0. 59,7 |
| 4. 27. 30 | 0. 1. 12. 4,4  | 0. 53,8 | 5. 5. 30 | 0. 0. 27. 38,3 | 0. 57,2 | 5. 13. 30 | 11. 29. 40. 48,8 | 0. 59,7 |
| 4. 27. 40 | 0. 1. 11. 10,6 | 0. 53,9 | 5. 5. 40 | 0. 0. 26. 41,1 | 0. 57,3 | 5. 13. 40 | 11. 29. 39. 49,1 | 0. 59,8 |
| 4. 27. 50 | 0. 1. 10. 16,7 | 0. 53,9 | 5. 5. 50 | 0. 0. 25. 43,8 | 0. 57,4 | 5. 13. 50 | 11. 29. 38. 49,3 | 0. 59,8 |
| 4. 28. 0  | 0. 1. 9. 22,8  | 0. 54,0 | 5. 6. 0  | 0. 0. 24. 46,4 | 0. 57,4 | 5. 14. 0  | 11. 29. 37. 49,5 | 0. 59,8 |
| 4. 28. 10 | 0. 1. 8. 28,8  | 0. 54,1 | 5. 6. 10 | 0. 0. 23. 49,0 | 0. 57,5 | 5. 14. 10 | 11. 29. 36. 49,7 | 0. 59,9 |
| 4. 28. 20 | 0. 1. 7. 34,7  | 0. 54,2 | 5. 6. 20 | 0. 0. 22. 51,5 | 0. 57,5 | 5. 14. 20 | 11. 29. 35. 49,8 | 0. 59,9 |
| 4. 28. 30 | 0. 1. 6. 40,5  | 0. 54,3 | 5. 6. 30 | 0. 0. 21. 54,0 | 0. 57,6 | 5. 14. 30 | 11. 29. 34. 49,9 | 1. 0,0  |
| 4. 28. 40 | 0. 1. 5. 46,2  | 0. 54,3 | 5. 6. 40 | 0. 0. 20. 56,4 | 0. 57,6 | 5. 14. 40 | 11. 29. 33. 49,9 | 1. 0,0  |
| 4. 28. 50 | 0. 1. 4. 51,9  | 0. 54,4 | 5. 6. 50 | 0. 0. 19. 58,8 | 0. 57,7 | 5. 14. 50 | 11. 29. 32. 49,9 | 1. 0,1  |
| 4. 29. 0  | 0. 1. 3. 57,5  | 0. 54,5 | 5. 7. 0  | 0. 0. 19. 1,1  | 0. 57,8 | 5. 15. 0  | 11. 29. 31. 49,8 | 1. 0,1  |
| 4. 29. 10 | 0. 1. 3. 3,0   | 0. 54,6 | 5. 7. 10 | 0. 0. 18. 3,3  | 0. 57,8 | 5. 15. 10 | 11. 29. 30. 49,7 | 1. 0,1  |
| 4. 29. 20 | 0. 1. 2. 8,4   | 0. 54,6 | 5. 7. 20 | 0. 0. 17. 5,5  | 0. 57,9 | 5. 15. 20 | 11. 29. 29. 49,6 | 1. 0,2  |
| 4. 29. 30 | 0. 1. 1. 13,8  | 0. 54,7 | 5. 7. 30 | 0. 0. 16. 7,6  | 0. 57,9 | 5. 15. 30 | 11. 29. 28. 49,4 | 1. 0,2  |
| 4. 29. 40 | 0. 1. 0. 19,1  | 0. 54,8 | 5. 7. 40 | 0. 0. 15. 9,7  | 0. 58,0 | 5. 15. 40 | 11. 29. 27. 49,2 | 1. 0,2  |
| 4. 29. 50 | 0. 0. 59. 24,3 | 0. 54,9 | 5. 7. 50 | 0. 0. 14. 11,7 | 0. 58,1 | 5. 15. 50 | 11. 29. 26. 49,0 | 1. 0,3  |
| 5. 0. 0   | 0. 0. 58. 29,4 | 0. 55,0 | 5. 8. 0  | 0. 0. 13. 13,6 | 0. 58,1 | 5. 16. 0  | 11. 29. 25. 48,7 | 1. 0,3  |
| 5. 0. 10  | 0. 0. 57. 34,4 | 0. 55,0 | 5. 8. 10 | 0. 0. 12. 15,5 | 0. 58,2 | 5. 16. 10 | 11. 29. 24. 48,4 | 1. 0,4  |
| 5. 0. 20  | 0. 0. 56. 39,4 | 0. 55,1 | 5. 8. 20 | 0. 0. 11. 17,3 | 0. 58,2 | 5. 16. 20 | 11. 29. 23. 48,0 | 1. 0,4  |
| 5. 0. 30  | 0. 0. 55. 44,3 | 0. 55,2 | 5. 8. 30 | 0. 0. 10. 19,1 | 0. 58,3 | 5. 16. 30 | 11. 29. 22. 47,6 | 1. 0,4  |
| 5. 0. 40  | 0. 0. 54. 49,1 | 0. 55,2 | 5. 8. 40 | 0. 0. 9. 20,8  | 0. 58,3 | 5. 16. 40 | 11. 29. 21. 47,2 | 1. 0,4  |
| 5. 0. 50  | 0. 0. 53. 53,9 | 0. 55,3 | 5. 8. 50 | 0. 0. 8. 22,5  | 0. 58,4 | 5. 16. 50 | 11. 29. 20. 46,8 | 1. 0,5  |
| 5. 1. 0   | 0. 0. 52. 58,6 | 0. 55,4 | 5. 9. 0  | 0. 0. 7. 24,1  | 0. 58,4 | 5. 17. 0  | 11. 29. 19. 46,3 | 1. 0,5  |
| 5. 1. 10  | 0. 0. 52. 3,2  | 0. 55,5 | 5. 9. 10 | 0. 0. 6. 25,7  | 0. 58,5 | 5. 17. 10 | 11. 29. 18. 45,8 | 1. 0,5  |
| 5. 1. 20  | 0. 0. 51. 7,7  | 0. 55,5 | 5. 9. 20 | 0. 0. 5. 27,2  | 0. 58,6 | 5. 17. 20 | 11. 29. 17. 45,3 | 1. 0,6  |
| 5. 1. 30  | 0. 0. 50. 12,2 | 0. 55,6 | 5. 9. 30 | 0. 0. 4. 28,6  | 0. 58,6 | 5. 17. 30 | 11. 29. 16. 44,7 | 1. 0,6  |
| 5. 1. 40  | 0. 0. 49. 16,6 | 0. 55,7 | 5. 9. 40 | 0. 0. 3. 30,0  | 0. 58,7 | 5. 17. 40 | 11. 29. 15. 44,1 | 1. 0,6  |
| 5. 1. 50  | 0. 0. 48. 20,9 | 0. 55,8 | 5. 9. 50 | 0. 0. 2. 31,3  | 0. 58,7 | 5. 17. 50 | 11. 29. 14. 43,5 | 1. 0,7  |
| 5. 2. 0   | 0. 0. 47. 25,1 |         | 5. 10. 0 | 0. 0. 1. 32,6  |         | 5. 18. 0  | 11. 29. 13. 42,8 |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.        | Diff.  |           | Equation.        | Diff.  |           | Equation.        | Diff.  |
|-----------|------------------|--------|-----------|------------------|--------|-----------|------------------|--------|
| 5. 18. 0  | 11. 29. 13. 42,8 | 1. 0,7 | 5. 26. 0  | 11. 28. 24. 42,1 | 1. 1,7 | 6. 4. 0   | 11. 27. 35. 17,9 | 1. 1,7 |
| 5. 18. 10 | 11. 29. 12. 42,1 | 1. 0,7 | 5. 26. 10 | 11. 28. 23. 40,4 | 1. 1,7 | 6. 4. 10  | 11. 27. 34. 16,2 | 1. 1,6 |
| 5. 18. 20 | 11. 29. 11. 41,4 | 1. 0,8 | 5. 26. 20 | 11. 28. 22. 38,7 | 1. 1,7 | 6. 4. 20  | 11. 27. 33. 14,6 | 1. 1,7 |
| 5. 18. 30 | 11. 29. 10. 40,6 | 1. 0,8 | 5. 26. 30 | 11. 28. 21. 37,0 | 1. 1,7 | 6. 4. 30  | 11. 27. 32. 12,9 | 1. 1,7 |
| 5. 18. 40 | 11. 29. 9. 39,8  | 1. 0,8 | 5. 26. 40 | 11. 28. 20. 35,3 | 1. 1,7 | 6. 4. 40  | 11. 27. 31. 11,2 | 1. 1,6 |
| 5. 18. 50 | 11. 29. 8. 39,0  | 1. 0,9 | 5. 26. 50 | 11. 28. 19. 33,6 | 1. 1,7 | 6. 4. 50  | 11. 27. 30. 9,6  | 1. 1,6 |
| 5. 19. 0  | 11. 29. 7. 38,1  | 1. 0,9 | 5. 27. 0  | 11. 28. 18. 31,9 | 1. 1,7 | 6. 5. 0   | 11. 27. 29. 8,0  | 1. 1,6 |
| 5. 19. 10 | 11. 29. 6. 37,2  | 1. 0,9 | 5. 27. 10 | 11. 28. 17. 30,2 | 1. 1,7 | 6. 5. 10  | 11. 27. 28. 6,4  | 1. 1,6 |
| 5. 19. 20 | 11. 29. 5. 36,3  | 1. 0,9 | 5. 27. 20 | 11. 28. 16. 28,5 | 1. 1,8 | 6. 5. 20  | 11. 27. 27. 4,8  | 1. 1,6 |
| 5. 19. 30 | 11. 29. 4. 35,4  | 1. 1,0 | 5. 27. 30 | 11. 28. 15. 26,7 | 1. 1,8 | 6. 5. 30  | 11. 27. 26. 3,2  | 1. 1,5 |
| 5. 19. 40 | 11. 29. 3. 34,4  | 1. 1,0 | 5. 27. 40 | 11. 28. 14. 24,9 | 1. 1,7 | 6. 5. 40  | 11. 27. 25. 1,7  | 1. 1,0 |
| 5. 19. 50 | 11. 29. 2. 33,4  | 1. 1,0 | 5. 27. 50 | 11. 28. 13. 23,2 | 1. 1,8 | 6. 5. 50  | 11. 27. 24. 0,1  | 1. 1,5 |
| 5. 20. 0  | 11. 29. 1. 32,4  | 1. 1,0 | 5. 28. 0  | 11. 28. 12. 21,4 | 1. 1,8 | 6. 6. 0   | 11. 27. 22. 58,6 | 1. 1,5 |
| 5. 20. 10 | 11. 29. 0. 31,4  | 1. 1,1 | 5. 28. 10 | 11. 28. 11. 19,6 | 1. 1,7 | 6. 6. 10  | 11. 27. 21. 57,1 | 1. 1,5 |
| 5. 20. 20 | 11. 28. 59. 30,3 | 1. 1,1 | 5. 28. 20 | 11. 28. 10. 17,9 | 1. 1,8 | 6. 6. 20  | 11. 27. 20. 55,6 | 1. 1,5 |
| 5. 20. 30 | 11. 28. 58. 29,2 | 1. 1,1 | 5. 28. 30 | 11. 28. 9. 16,1  | 1. 1,7 | 6. 6. 30  | 11. 27. 19. 54,1 | 1. 1,5 |
| 5. 20. 40 | 11. 28. 57. 28,1 | 1. 1,1 | 5. 28. 40 | 11. 28. 8. 14,4  | 1. 1,8 | 6. 6. 40  | 11. 27. 18. 52,6 | 1. 1,4 |
| 5. 20. 50 | 11. 28. 56. 27,0 | 1. 1,2 | 5. 28. 50 | 11. 28. 7. 12,6  | 1. 1,8 | 6. 6. 50  | 11. 27. 17. 51,2 | 1. 1,4 |
| 5. 21. 0  | 11. 28. 55. 25,8 | 1. 1,2 | 5. 29. 0  | 11. 28. 6. 10,8  | 1. 1,8 | 6. 7. 0   | 11. 27. 16. 49,8 | 1. 1,4 |
| 5. 21. 10 | 11. 28. 54. 24,6 | 1. 1,2 | 5. 29. 10 | 11. 28. 5. 9,0   | 1. 1,8 | 6. 7. 10  | 11. 27. 15. 48,4 | 1. 1,4 |
| 5. 21. 20 | 11. 28. 53. 23,4 | 1. 1,2 | 5. 29. 20 | 11. 28. 4. 7,2   | 1. 1,8 | 6. 7. 20  | 11. 27. 14. 47,0 | 1. 1,4 |
| 5. 21. 30 | 11. 28. 52. 22,2 | 1. 1,2 | 5. 29. 30 | 11. 28. 3. 5,4   | 1. 1,8 | 6. 7. 30  | 11. 27. 13. 45,6 | 1. 1,3 |
| 5. 21. 40 | 11. 28. 51. 21,0 | 1. 1,3 | 5. 29. 40 | 11. 28. 2. 3,6   | 1. 1,8 | 6. 7. 40  | 11. 27. 12. 44,3 | 1. 1,4 |
| 5. 21. 50 | 11. 28. 50. 19,7 | 1. 1,3 | 5. 29. 50 | 11. 28. 1. 1,8   | 1. 1,8 | 6. 7. 50  | 11. 27. 11. 42,9 | 1. 1,3 |
| 5. 22. 0  | 11. 28. 49. 18,4 | 1. 1,3 | 6. 0. 0   | 11. 28. 0. 0,0   | 1. 1,8 | 6. 8. 0   | 11. 27. 10. 41,6 | 1. 1,3 |
| 5. 22. 10 | 11. 28. 48. 17,1 | 1. 1,3 | 6. 0. 10  | 11. 27. 58. 58,2 | 1. 1,8 | 6. 8. 10  | 11. 27. 9. 40,3  | 1. 1,2 |
| 5. 22. 20 | 11. 28. 47. 15,8 | 1. 1,4 | 6. 0. 20  | 11. 27. 57. 56,4 | 1. 1,8 | 6. 8. 20  | 11. 27. 8. 39,1  | 1. 1,2 |
| 5. 22. 30 | 11. 28. 46. 14,4 | 1. 1,4 | 6. 0. 30  | 11. 27. 56. 54,6 | 1. 1,8 | 6. 8. 30  | 11. 27. 7. 37,9  | 1. 1,3 |
| 5. 22. 40 | 11. 28. 45. 13,0 | 1. 1,4 | 6. 0. 40  | 11. 27. 55. 52,8 | 1. 1,8 | 6. 8. 40  | 11. 27. 6. 36,6  | 1. 1,2 |
| 5. 22. 50 | 11. 28. 44. 11,6 | 1. 1,4 | 6. 0. 50  | 11. 27. 54. 51,0 | 1. 1,8 | 6. 8. 50  | 11. 27. 5. 35,4  | 1. 1,2 |
| 5. 23. 0  | 11. 28. 43. 10,2 | 1. 1,4 | 6. 1. 0   | 11. 27. 53. 49,2 | 1. 1,8 | 6. 9. 0   | 11. 27. 4. 34,2  | 1. 1,2 |
| 5. 23. 10 | 11. 28. 42. 8,8  | 1. 1,4 | 6. 1. 10  | 11. 27. 52. 47,4 | 1. 1,8 | 6. 9. 10  | 11. 27. 3. 33,0  | 1. 1,1 |
| 5. 23. 20 | 11. 28. 41. 7,4  | 1. 1,5 | 6. 1. 20  | 11. 27. 51. 45,6 | 1. 1,7 | 6. 9. 20  | 11. 27. 2. 31,9  | 1. 1,1 |
| 5. 23. 30 | 11. 28. 40. 5,9  | 1. 1,5 | 6. 1. 30  | 11. 27. 50. 43,9 | 1. 1,8 | 6. 9. 30  | 11. 27. 1. 30,8  | 1. 1,1 |
| 5. 23. 40 | 11. 28. 39. 4,4  | 1. 1,5 | 6. 1. 40  | 11. 27. 49. 42,1 | 1. 1,7 | 6. 9. 40  | 11. 27. 0. 29,7  | 1. 1,1 |
| 5. 23. 50 | 11. 28. 38. 2,9  | 1. 1,5 | 6. 1. 50  | 11. 27. 48. 40,4 | 1. 1,8 | 6. 9. 50  | 11. 26. 59. 28,6 | 1. 1,0 |
| 5. 24. 0  | 11. 28. 37. 1,4  | 1. 1,5 | 6. 2. 0   | 11. 27. 47. 38,6 | 1. 1,8 | 6. 10. 0  | 11. 26. 58. 27,6 | 1. 1,0 |
| 5. 24. 10 | 11. 28. 35. 59,9 | 1. 1,5 | 6. 2. 10  | 11. 27. 46. 36,8 | 1. 1,7 | 6. 10. 10 | 11. 26. 57. 26,6 | 1. 1,0 |
| 5. 24. 20 | 11. 28. 34. 58,4 | 1. 1,6 | 6. 2. 20  | 11. 27. 45. 35,1 | 1. 1,8 | 6. 10. 20 | 11. 26. 56. 25,6 | 1. 1,0 |
| 5. 24. 30 | 11. 28. 33. 56,8 | 1. 1,6 | 6. 2. 30  | 11. 27. 44. 33,3 | 1. 1,8 | 6. 10. 30 | 11. 26. 55. 24,6 | 1. 0,9 |
| 5. 24. 40 | 11. 28. 32. 55,2 | 1. 1,6 | 6. 2. 40  | 11. 27. 43. 31,5 | 1. 1,7 | 6. 10. 40 | 11. 26. 54. 23,7 | 1. 0,9 |
| 5. 24. 50 | 11. 28. 31. 53,6 | 1. 1,6 | 6. 2. 50  | 11. 27. 42. 29,8 | 1. 1,7 | 6. 10. 50 | 11. 26. 53. 22,8 | 1. 0,9 |
| 5. 25. 0  | 11. 28. 30. 52,0 | 1. 1,6 | 6. 3. 0   | 11. 27. 41. 28,1 | 1. 1,7 | 6. 11. 0  | 11. 26. 52. 21,9 | 1. 0,9 |
| 5. 25. 10 | 11. 28. 29. 50,4 | 1. 1,6 | 6. 3. 10  | 11. 27. 40. 26,4 | 1. 1,7 | 6. 11. 10 | 11. 26. 51. 21,0 | 1. 0,8 |
| 5. 25. 20 | 11. 28. 28. 48,8 | 1. 1,7 | 6. 3. 20  | 11. 27. 39. 24,7 | 1. 1,7 | 6. 11. 20 | 11. 26. 50. 20,2 | 1. 0,8 |
| 5. 25. 30 | 11. 28. 27. 47,1 | 1. 1,7 | 6. 3. 30  | 11. 27. 38. 23,0 | 1. 1,7 | 6. 11. 30 | 11. 26. 49. 19,4 | 1. 0,8 |
| 5. 25. 40 | 11. 28. 26. 45,4 | 1. 1,6 | 6. 3. 40  | 11. 27. 37. 21,3 | 1. 1,7 | 6. 11. 40 | 11. 26. 48. 18,6 | 1. 0,7 |
| 5. 25. 50 | 11. 28. 25. 43,8 | 1. 1,7 | 6. 3. 50  | 11. 27. 36. 19,6 | 1. 1,7 | 6. 11. 50 | 11. 26. 47. 17,9 | 1. 0,7 |
| 5. 26. 0  | 11. 28. 24. 42,1 |        | 6. 4. 0   | 11. 27. 35. 17,9 |        | 6. 12. 0  | 11. 26. 46. 17,2 |        |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.        | Diff.   |           | Equation.        | Diff.   |           | Equation.        | Diff.   |
|-----------|------------------|---------|-----------|------------------|---------|-----------|------------------|---------|
| s o       | s o              |         | s o       | s o              |         | s o       | s o              |         |
| 6. 12. 0  | 11. 26. 46. 17,2 | 1. 0,7  | 6. 20. 0  | 11. 25. 58. 27,4 | 0. 58,7 | 6. 28. 0  | 11. 25. 12. 34,9 | 0. 55,8 |
| 6. 12. 10 | 11. 26. 45. 16,5 | 1. 0,6  | 6. 20. 10 | 11. 25. 57. 28,7 | 0. 58,7 | 6. 28. 10 | 11. 25. 11. 39,1 | 0. 55,7 |
| 6. 12. 20 | 11. 26. 44. 15,9 | 1. 0,6  | 6. 20. 20 | 11. 25. 56. 30,0 | 0. 58,6 | 6. 28. 20 | 11. 25. 10. 43,4 | 0. 55,6 |
| 6. 12. 30 | 11. 26. 43. 15,3 | 1. 0,6  | 6. 20. 30 | 11. 25. 55. 31,4 | 0. 58,6 | 6. 28. 30 | 11. 25. 9. 47,8  | 0. 55,5 |
| 6. 12. 40 | 11. 26. 42. 14,7 | 1. 0,5  | 6. 20. 40 | 11. 25. 54. 32,8 | 0. 58,5 | 6. 28. 40 | 11. 25. 8. 52,3  | 0. 55,5 |
| 6. 12. 50 | 11. 26. 41. 14,2 | 1. 0,5  | 6. 20. 50 | 11. 25. 53. 34,3 | 0. 58,4 | 6. 28. 50 | 11. 25. 7. 56,8  | 0. 55,4 |
| 6. 13. 0  | 11. 26. 40. 13,7 | 1. 0,5  | 6. 21. 0  | 11. 25. 52. 35,9 | 0. 58,4 | 6. 29. 0  | 11. 25. 7. 1,4   | 0. 55,3 |
| 6. 13. 10 | 11. 26. 39. 13,2 | 1. 0,4  | 6. 21. 10 | 11. 25. 51. 37,5 | 0. 58,3 | 6. 29. 10 | 11. 25. 6. 6,1   | 0. 55,2 |
| 6. 13. 20 | 11. 26. 38. 12,8 | 1. 0,4  | 6. 21. 20 | 11. 25. 50. 39,2 | 0. 58,3 | 6. 29. 20 | 11. 25. 5. 10,9  | 0. 55,2 |
| 6. 13. 30 | 11. 26. 37. 12,4 | 1. 0,4  | 6. 21. 30 | 11. 25. 49. 40,9 | 0. 58,2 | 6. 29. 30 | 11. 25. 4. 15,7  | 0. 55,1 |
| 6. 13. 40 | 11. 26. 36. 12,0 | 1. 0,4  | 6. 21. 40 | 11. 25. 48. 42,7 | 0. 58,2 | 6. 29. 40 | 11. 25. 3. 20,6  | 0. 55,0 |
| 6. 13. 50 | 11. 26. 35. 11,6 | 1. 0,3  | 6. 21. 50 | 11. 25. 47. 44,5 | 0. 58,1 | 6. 29. 50 | 11. 25. 2. 25,6  | 0. 55,0 |
| 6. 14. 0  | 11. 26. 34. 11,3 | 1. 0,3  | 6. 22. 0  | 11. 25. 46. 46,4 | 0. 58,1 | 7. 0. 0   | 11. 25. 1. 30,6  | 0. 54,9 |
| 6. 14. 10 | 11. 26. 33. 11,0 | 1. 0,2  | 6. 22. 10 | 11. 25. 45. 48,3 | 0. 58,0 | 7. 0. 10  | 11. 25. 0. 35,7  | 0. 54,8 |
| 6. 14. 20 | 11. 26. 32. 10,8 | 1. 0,2  | 6. 22. 20 | 11. 25. 44. 50,3 | 0. 57,9 | 7. 0. 20  | 11. 24. 59. 40,9 | 0. 54,7 |
| 6. 14. 30 | 11. 26. 31. 10,6 | 1. 0,2  | 6. 22. 30 | 11. 25. 43. 52,4 | 0. 57,9 | 7. 0. 30  | 11. 24. 58. 46,2 | 0. 54,6 |
| 6. 14. 40 | 11. 26. 30. 10,4 | 1. 0,1  | 6. 22. 40 | 11. 25. 42. 54,5 | 0. 57,8 | 7. 0. 40  | 11. 24. 57. 51,6 | 0. 54,6 |
| 6. 14. 50 | 11. 26. 29. 10,3 | 1. 0,1  | 6. 22. 50 | 11. 25. 41. 56,7 | 0. 57,8 | 7. 0. 50  | 11. 24. 56. 57,0 | 0. 54,5 |
| 6. 15. 0  | 11. 26. 28. 10,2 | 1. 0,1  | 6. 23. 0  | 11. 25. 40. 58,9 | 0. 57,7 | 7. 1. 0   | 11. 24. 56. 2,5  | 0. 54,4 |
| 6. 15. 10 | 11. 26. 27. 10,1 | 1. 0,0  | 6. 23. 10 | 11. 25. 40. 1,2  | 0. 57,6 | 7. 1. 10  | 11. 24. 55. 8,1  | 0. 54,3 |
| 6. 15. 20 | 11. 26. 26. 10,1 | 1. 0,0  | 6. 23. 20 | 11. 25. 39. 3,6  | 0. 57,6 | 7. 1. 20  | 11. 24. 54. 13,8 | 0. 54,3 |
| 6. 15. 30 | 11. 26. 25. 10,1 | 0. 59,9 | 6. 23. 30 | 11. 25. 38. 6,0  | 0. 57,5 | 7. 1. 30  | 11. 24. 53. 19,5 | 0. 54,2 |
| 6. 15. 40 | 11. 26. 24. 10,2 | 0. 59,9 | 6. 23. 40 | 11. 25. 37. 8,5  | 0. 57,5 | 7. 1. 40  | 11. 24. 52. 25,3 | 0. 54,1 |
| 6. 15. 50 | 11. 26. 23. 10,3 | 0. 59,8 | 6. 23. 50 | 11. 25. 36. 11,0 | 0. 57,4 | 7. 1. 50  | 11. 24. 51. 31,2 | 0. 54,0 |
| 6. 16. 0  | 11. 26. 22. 10,5 | 0. 59,8 | 6. 24. 0  | 11. 25. 35. 13,6 | 0. 57,4 | 7. 2. 0   | 11. 24. 50. 37,2 | 0. 53,9 |
| 6. 16. 10 | 11. 26. 21. 10,7 | 0. 59,8 | 6. 24. 10 | 11. 25. 34. 16,2 | 0. 57,3 | 7. 2. 10  | 11. 24. 49. 43,3 | 0. 53,9 |
| 6. 16. 20 | 11. 26. 20. 10,9 | 0. 59,7 | 6. 24. 20 | 11. 25. 33. 18,9 | 0. 57,2 | 7. 2. 20  | 11. 24. 48. 49,4 | 0. 53,8 |
| 6. 16. 30 | 11. 26. 19. 11,2 | 0. 59,7 | 6. 24. 30 | 11. 25. 32. 21,7 | 0. 57,2 | 7. 2. 30  | 11. 24. 47. 55,6 | 0. 53,7 |
| 6. 16. 40 | 11. 26. 18. 11,5 | 0. 59,6 | 6. 24. 40 | 11. 25. 31. 24,5 | 0. 57,1 | 7. 2. 40  | 11. 24. 47. 1,9  | 0. 53,6 |
| 6. 16. 50 | 11. 26. 17. 11,9 | 0. 59,6 | 6. 24. 50 | 11. 25. 30. 27,4 | 0. 57,0 | 7. 2. 50  | 11. 24. 46. 8,3  | 0. 53,5 |
| 6. 17. 0  | 11. 26. 16. 12,3 | 0. 59,6 | 6. 25. 0  | 11. 25. 29. 30,4 | 0. 57,0 | 7. 3. 0   | 11. 24. 45. 14,8 | 0. 53,4 |
| 6. 17. 10 | 11. 26. 15. 12,7 | 0. 59,5 | 6. 25. 10 | 11. 25. 28. 33,4 | 0. 56,9 | 7. 3. 10  | 11. 24. 44. 21,4 | 0. 53,4 |
| 6. 17. 20 | 11. 26. 14. 13,2 | 0. 59,5 | 6. 25. 20 | 11. 25. 27. 36,5 | 0. 56,8 | 7. 3. 20  | 11. 24. 43. 28,0 | 0. 53,3 |
| 6. 17. 30 | 11. 26. 13. 13,7 | 0. 59,4 | 6. 25. 30 | 11. 25. 26. 39,7 | 0. 56,8 | 7. 3. 30  | 11. 24. 42. 34,7 | 0. 53,2 |
| 6. 17. 40 | 11. 26. 12. 14,3 | 0. 59,4 | 6. 25. 40 | 11. 25. 25. 42,9 | 0. 56,7 | 7. 3. 40  | 11. 24. 41. 41,5 | 0. 53,1 |
| 6. 17. 50 | 11. 26. 11. 14,9 | 0. 59,3 | 6. 25. 50 | 11. 25. 24. 46,2 | 0. 56,7 | 7. 3. 50  | 11. 24. 40. 48,4 | 0. 53,0 |
| 6. 18. 0  | 11. 26. 10. 15,6 | 0. 59,3 | 6. 26. 0  | 11. 25. 23. 49,5 | 0. 56,6 | 7. 4. 0   | 11. 24. 39. 55,4 | 0. 52,9 |
| 6. 18. 10 | 11. 26. 9. 16,3  | 0. 59,2 | 6. 26. 10 | 11. 25. 22. 52,9 | 0. 56,5 | 7. 4. 10  | 11. 24. 39. 2,5  | 0. 52,8 |
| 6. 18. 20 | 11. 26. 8. 17,1  | 0. 59,2 | 6. 26. 20 | 11. 25. 21. 56,4 | 0. 56,4 | 7. 4. 20  | 11. 24. 38. 9,7  | 0. 52,8 |
| 6. 18. 30 | 11. 26. 7. 17,9  | 0. 59,1 | 6. 26. 30 | 11. 25. 21. 0,0  | 0. 56,4 | 7. 4. 30  | 11. 24. 37. 16,9 | 0. 52,7 |
| 6. 18. 40 | 11. 26. 6. 18,8  | 0. 59,1 | 6. 26. 40 | 11. 25. 20. 3,6  | 0. 56,3 | 7. 4. 40  | 11. 24. 36. 24,2 | 0. 52,6 |
| 6. 18. 50 | 11. 26. 5. 19,7  | 0. 59,1 | 6. 26. 50 | 11. 25. 19. 7,3  | 0. 56,3 | 7. 4. 50  | 11. 24. 35. 31,6 | 0. 52,5 |
| 6. 19. 0  | 11. 26. 4. 20,6  | 0. 59,0 | 6. 27. 0  | 11. 25. 18. 11,0 | 0. 56,2 | 7. 5. 0   | 11. 24. 34. 39,1 | 0. 52,4 |
| 6. 19. 10 | 11. 26. 3. 21,6  | 0. 59,0 | 6. 27. 10 | 11. 25. 17. 14,8 | 0. 56,1 | 7. 5. 10  | 11. 24. 33. 46,7 | 0. 52,3 |
| 6. 19. 20 | 11. 26. 2. 22,6  | 0. 58,9 | 6. 27. 20 | 11. 25. 16. 18,7 | 0. 56,1 | 7. 5. 20  | 11. 24. 32. 54,4 | 0. 52,2 |
| 6. 19. 30 | 11. 26. 1. 23,7  | 0. 58,8 | 6. 27. 30 | 11. 25. 15. 22,6 | 0. 56,0 | 7. 5. 30  | 11. 24. 32. 2,2  | 0. 52,2 |
| 6. 19. 40 | 11. 26. 0. 24,9  | 0. 58,8 | 6. 27. 40 | 11. 25. 14. 26,6 | 0. 55,9 | 7. 5. 40  | 11. 24. 31. 10,0 | 0. 52,1 |
| 6. 19. 50 | 11. 25. 59. 26,1 | 0. 58,7 | 6. 27. 50 | 11. 25. 13. 30,7 | 0. 55,8 | 7. 5. 50  | 11. 24. 30. 17,9 | 0. 52,0 |
| 6. 20. 0  | 11. 25. 58. 27,4 |         | 6. 28. 0  | 11. 25. 12. 34,9 |         | 7. 6. 0   | 11. 24. 29. 25,9 |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.        | Diff.   |           | Equation.        | Diff.   |           | Equation.        | Diff.   |
|-----------|------------------|---------|-----------|------------------|---------|-----------|------------------|---------|
| s o ' "   | s o ' "          |         | s o ' "   | s o ' "          |         | s o ' "   | s o ' "          |         |
| 7. 6. 0   | II. 24. 29. 25,9 | 0. 51,9 | 7. 14. 0  | II. 23. 49. 45,1 | 0. 47,1 | 7. 22. 0  | II. 23. 14. 15,7 | 0. 41,4 |
| 7. 6. 10  | II. 24. 28. 34,0 | 0. 51,8 | 7. 14. 10 | II. 23. 48. 58,0 | 0. 47,0 | 7. 22. 10 | II. 23. 13. 34,3 | 0. 41,3 |
| 7. 6. 20  | II. 24. 27. 42,2 | 0. 51,7 | 7. 14. 20 | II. 23. 48. 11,0 | 0. 46,8 | 7. 22. 20 | II. 23. 12. 53,0 | 0. 41,1 |
| 7. 6. 30  | II. 24. 26. 50,5 | 0. 51,6 | 7. 14. 30 | II. 23. 47. 24,2 | 0. 46,7 | 7. 22. 30 | II. 23. 12. 11,9 | 0. 41,0 |
| 7. 6. 40  | II. 24. 25. 58,9 | 0. 51,5 | 7. 14. 40 | II. 23. 46. 37,5 | 0. 46,6 | 7. 22. 40 | II. 23. 11. 30,9 | 0. 40,9 |
| 7. 6. 50  | II. 24. 25. 7,4  | 0. 51,4 | 7. 14. 50 | II. 23. 45. 50,9 | 0. 46,5 | 7. 22. 50 | II. 23. 10. 50,0 | 0. 40,7 |
| 7. 7. 0   | II. 24. 24. 16,0 | 0. 51,3 | 7. 15. 0  | II. 23. 45. 4,4  | 0. 46,4 | 7. 23. 0  | II. 23. 10. 9,3  | 0. 40,6 |
| 7. 7. 10  | II. 24. 23. 24,7 | 0. 51,1 | 7. 15. 10 | II. 23. 44. 18,0 | 0. 46,4 | 7. 23. 10 | II. 23. 9. 28,7  | 0. 40,5 |
| 7. 7. 20  | II. 24. 22. 33,6 | 0. 51,1 | 7. 15. 20 | II. 23. 43. 31,6 | 0. 46,2 | 7. 23. 20 | II. 23. 8. 48,2  | 0. 40,4 |
| 7. 7. 30  | II. 24. 21. 42,5 | 0. 51,0 | 7. 15. 30 | II. 23. 42. 45,4 | 0. 46,1 | 7. 23. 30 | II. 23. 8. 7,8   | 0. 40,3 |
| 7. 7. 40  | II. 24. 20. 51,5 | 0. 51,0 | 7. 15. 40 | II. 23. 41. 59,3 | 0. 46,0 | 7. 23. 40 | II. 23. 7. 27,5  | 0. 40,1 |
| 7. 7. 50  | II. 24. 20. 0,5  | 0. 50,9 | 7. 15. 50 | II. 23. 41. 13,3 | 0. 45,9 | 7. 23. 50 | II. 23. 6. 47,4  | 0. 40,0 |
| 7. 8. 0   | II. 24. 19. 9,6  | 0. 50,8 | 7. 16. 0  | II. 23. 40. 27,4 | 0. 45,8 | 7. 24. 0  | II. 23. 6. 7,4   | 0. 39,8 |
| 7. 8. 10  | II. 24. 18. 18,8 | 0. 50,7 | 7. 16. 10 | II. 23. 39. 41,6 | 0. 45,6 | 7. 24. 10 | II. 23. 5. 27,6  | 0. 39,7 |
| 7. 8. 20  | II. 24. 17. 28,1 | 0. 50,6 | 7. 16. 20 | II. 23. 38. 56,0 | 0. 45,5 | 7. 24. 20 | II. 23. 4. 47,9  | 0. 39,6 |
| 7. 8. 30  | II. 24. 16. 37,5 | 0. 50,5 | 7. 16. 30 | II. 23. 38. 10,5 | 0. 45,4 | 7. 24. 30 | II. 23. 4. 8,3   | 0. 39,4 |
| 7. 8. 40  | II. 24. 15. 47,0 | 0. 50,4 | 7. 16. 40 | II. 23. 37. 25,1 | 0. 45,3 | 7. 24. 40 | II. 23. 3. 28,9  | 0. 39,3 |
| 7. 8. 50  | II. 24. 14. 56,6 | 0. 50,3 | 7. 16. 50 | II. 23. 36. 39,8 | 0. 45,1 | 7. 24. 50 | II. 23. 2. 49,6  | 0. 39,2 |
| 7. 9. 0   | II. 24. 14. 6,3  | 0. 50,2 | 7. 17. 0  | II. 23. 35. 54,7 | 0. 45,0 | 7. 25. 0  | II. 23. 2. 10,4  | 0. 39,0 |
| 7. 9. 10  | II. 24. 13. 16,1 | 0. 50,1 | 7. 17. 10 | II. 23. 35. 9,7  | 0. 44,9 | 7. 25. 10 | II. 23. 1. 31,4  | 0. 38,9 |
| 7. 9. 20  | II. 24. 12. 26,0 | 0. 49,9 | 7. 17. 20 | II. 23. 34. 24,8 | 0. 44,8 | 7. 25. 20 | II. 23. 0. 52,5  | 0. 38,8 |
| 7. 9. 30  | II. 24. 11. 36,1 | 0. 49,8 | 7. 17. 30 | II. 23. 33. 40,0 | 0. 44,7 | 7. 25. 30 | II. 23. 0. 13,7  | 0. 38,6 |
| 7. 9. 40  | II. 24. 10. 46,3 | 0. 49,8 | 7. 17. 40 | II. 23. 32. 55,3 | 0. 44,6 | 7. 25. 40 | II. 22. 59. 35,1 | 0. 38,5 |
| 7. 9. 50  | II. 24. 9. 56,5  | 0. 49,7 | 7. 17. 50 | II. 23. 32. 10,7 | 0. 44,4 | 7. 25. 50 | II. 22. 58. 56,6 | 0. 38,4 |
| 7. 10. 0  | II. 24. 9. 6,8   | 0. 49,6 | 7. 18. 0  | II. 23. 31. 26,3 | 0. 44,3 | 7. 26. 0  | II. 22. 58. 18,2 | 0. 38,2 |
| 7. 10. 10 | II. 24. 8. 17,2  | 0. 49,5 | 7. 18. 10 | II. 23. 30. 42,0 | 0. 44,2 | 7. 26. 10 | II. 22. 57. 40,0 | 0. 38,1 |
| 7. 10. 20 | II. 24. 7. 27,7  | 0. 49,4 | 7. 18. 20 | II. 23. 29. 57,8 | 0. 44,1 | 7. 26. 20 | II. 22. 57. 1,9  | 0. 38,0 |
| 7. 10. 30 | II. 24. 6. 38,3  | 0. 49,3 | 7. 18. 30 | II. 23. 29. 13,7 | 0. 44,0 | 7. 26. 30 | II. 22. 56. 23,9 | 0. 37,8 |
| 7. 10. 40 | II. 24. 5. 49,0  | 0. 49,2 | 7. 18. 40 | II. 23. 28. 29,7 | 0. 43,9 | 7. 26. 40 | II. 22. 55. 46,1 | 0. 37,7 |
| 7. 10. 50 | II. 24. 4. 59,8  | 0. 49,1 | 7. 18. 50 | II. 23. 27. 45,8 | 0. 43,7 | 7. 26. 50 | II. 22. 55. 8,4  | 0. 37,6 |
| 7. 11. 0  | II. 24. 4. 10,7  | 0. 49,0 | 7. 19. 0  | II. 23. 27. 2,1  | 0. 43,6 | 7. 27. 0  | II. 22. 54. 30,8 | 0. 37,4 |
| 7. 11. 10 | II. 24. 3. 21,7  | 0. 48,9 | 7. 19. 10 | II. 23. 26. 18,5 | 0. 43,5 | 7. 27. 10 | II. 22. 53. 53,4 | 0. 37,3 |
| 7. 11. 20 | II. 24. 2. 32,8  | 0. 48,8 | 7. 19. 20 | II. 23. 25. 35,0 | 0. 43,4 | 7. 27. 20 | II. 22. 53. 16,1 | 0. 37,1 |
| 7. 11. 30 | II. 24. 1. 44,0  | 0. 48,7 | 7. 19. 30 | II. 23. 24. 51,6 | 0. 43,3 | 7. 27. 30 | II. 22. 52. 39,0 | 0. 37,0 |
| 7. 11. 40 | II. 24. 0. 55,3  | 0. 48,5 | 7. 19. 40 | II. 23. 24. 8,3  | 0. 43,1 | 7. 27. 40 | II. 22. 52. 2,0  | 0. 36,9 |
| 7. 11. 50 | II. 24. 0. 6,8   | 0. 48,5 | 7. 19. 50 | II. 23. 23. 25,2 | 0. 43,0 | 7. 27. 50 | II. 22. 51. 25,1 | 0. 36,7 |
| 7. 12. 0  | II. 23. 59. 18,3 | 0. 48,4 | 7. 20. 0  | II. 23. 22. 42,2 | 0. 42,9 | 7. 28. 0  | II. 22. 50. 48,4 | 0. 36,6 |
| 7. 12. 10 | II. 23. 58. 29,9 | 0. 48,3 | 7. 20. 10 | II. 23. 21. 59,3 | 0. 42,8 | 7. 28. 10 | II. 22. 50. 11,8 | 0. 36,4 |
| 7. 12. 20 | II. 23. 57. 41,6 | 0. 48,1 | 7. 20. 20 | II. 23. 21. 16,5 | 0. 42,6 | 7. 28. 20 | II. 22. 49. 35,4 | 0. 36,3 |
| 7. 12. 30 | II. 23. 56. 53,5 | 0. 48,0 | 7. 20. 30 | II. 23. 20. 33,9 | 0. 42,5 | 7. 28. 30 | II. 22. 48. 59,1 | 0. 36,1 |
| 7. 12. 40 | II. 23. 56. 5,5  | 0. 47,9 | 7. 20. 40 | II. 23. 19. 51,4 | 0. 42,4 | 7. 28. 40 | II. 22. 48. 23,0 | 0. 36,0 |
| 7. 12. 50 | II. 23. 55. 17,6 | 0. 47,8 | 7. 20. 50 | II. 23. 19. 9,0  | 0. 42,3 | 7. 28. 50 | II. 22. 47. 47,0 | 0. 35,9 |
| 7. 13. 0  | II. 23. 54. 29,8 | 0. 47,7 | 7. 21. 0  | II. 23. 18. 26,7 | 0. 42,2 | 7. 29. 0  | II. 22. 47. 11,1 | 0. 35,7 |
| 7. 13. 10 | II. 23. 53. 42,1 | 0. 47,6 | 7. 21. 10 | II. 23. 17. 44,5 | 0. 42,0 | 7. 29. 10 | II. 22. 46. 35,4 | 0. 35,6 |
| 7. 13. 20 | II. 23. 52. 54,5 | 0. 47,5 | 7. 21. 20 | II. 23. 17. 2,5  | 0. 41,9 | 7. 29. 20 | II. 22. 45. 59,8 | 0. 35,5 |
| 7. 13. 30 | II. 23. 52. 7,0  | 0. 47,4 | 7. 21. 30 | II. 23. 16. 20,6 | 0. 41,8 | 7. 29. 30 | II. 22. 45. 24,3 | 0. 35,3 |
| 7. 13. 40 | II. 23. 51. 19,6 | 0. 47,3 | 7. 21. 40 | II. 23. 15. 38,8 | 0. 41,6 | 7. 29. 40 | II. 22. 44. 49,0 | 0. 35,2 |
| 7. 13. 50 | II. 23. 50. 32,3 | 0. 47,2 | 7. 21. 50 | II. 23. 14. 57,2 | 0. 41,5 | 7. 29. 50 | II. 22. 44. 13,8 | 0. 35,0 |
| 7. 14. 0  | II. 23. 49. 45,1 |         | 7. 22. 0  | II. 23. 14. 15,7 |         | 8. 0. 0   | II. 22. 43. 38,8 |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|          | Equation.        | Diff.   |           | Equation.        | Diff.   |           | Equation.        | Diff.   |
|----------|------------------|---------|-----------|------------------|---------|-----------|------------------|---------|
| s o      | s o              |         | s o       | s o              |         | s o       | s o              |         |
| 8. 0. 0  | 11. 22. 43. 38,8 | o. 34,9 | 8. 8. 0   | 11. 22. 18. 32,8 | o. 27,6 | 8. 16. 0  | 11. 21. 59. 32,5 | o. 19,6 |
| 8. 0. 10 | 11. 22. 43. 3,9  | o. 34,7 | 8. 8. 10  | 11. 22. 18. 5,2  | o. 27,4 | 8. 16. 10 | 11. 21. 59. 12,9 | o. 19,5 |
| 8. 0. 20 | 11. 22. 42. 29,2 | o. 34,6 | 8. 8. 20  | 11. 22. 17. 37,8 | o. 27,3 | 8. 16. 20 | 11. 21. 58. 53,4 | o. 19,3 |
| 8. 0. 30 | 11. 22. 41. 54,6 | o. 34,4 | 8. 8. 30  | 11. 22. 17. 10,5 | o. 27,1 | 8. 16. 30 | 11. 21. 58. 34,1 | o. 19,1 |
| 8. 0. 40 | 11. 22. 41. 20,2 | o. 34,3 | 8. 8. 40  | 11. 22. 16. 43,4 | o. 27,0 | 8. 16. 40 | 11. 21. 58. 15,0 | o. 19,0 |
| 8. 0. 50 | 11. 22. 40. 45,9 | o. 34,2 | 8. 8. 50  | 11. 22. 16. 16,4 | o. 26,8 | 8. 16. 50 | 11. 21. 57. 56,0 | o. 18,8 |
| 8. 1. 0  | 11. 22. 40. 11,7 | o. 34,0 | 8. 9. 0   | 11. 22. 15. 49,6 | o. 26,6 | 8. 17. 0  | 11. 21. 57. 37,2 | o. 18,6 |
| 8. 1. 10 | 11. 22. 39. 37,7 | o. 33,9 | 8. 9. 10  | 11. 22. 15. 23,0 | o. 26,5 | 8. 17. 10 | 11. 21. 57. 18,6 | o. 18,4 |
| 8. 1. 20 | 11. 22. 39. 3,8  | o. 33,7 | 8. 9. 20  | 11. 22. 14. 56,5 | o. 26,3 | 8. 17. 20 | 11. 21. 57. 0,2  | o. 18,3 |
| 8. 1. 30 | 11. 22. 38. 30,1 | o. 33,5 | 8. 9. 30  | 11. 22. 14. 30,2 | o. 26,2 | 8. 17. 30 | 11. 21. 56. 41,9 | o. 18,1 |
| 8. 1. 40 | 11. 22. 37. 56,6 | o. 33,4 | 8. 9. 40  | 11. 22. 14. 4,0  | o. 26,0 | 8. 17. 40 | 11. 21. 56. 23,8 | o. 17,9 |
| 8. 1. 50 | 11. 22. 37. 23,2 | o. 33,3 | 8. 9. 50  | 11. 22. 13. 38,0 | o. 25,8 | 8. 17. 50 | 11. 21. 56. 5,9  | o. 17,7 |
| 8. 2. 0  | 11. 22. 36. 49,9 | o. 33,1 | 8. 10. 0  | 11. 22. 13. 12,2 | o. 25,7 | 8. 18. 0  | 11. 21. 55. 48,2 | o. 17,5 |
| 8. 2. 10 | 11. 22. 36. 16,8 | o. 33,0 | 8. 10. 10 | 11. 22. 12. 46,5 | o. 25,5 | 8. 18. 10 | 11. 21. 55. 30,7 | o. 17,4 |
| 8. 2. 20 | 11. 22. 35. 43,8 | o. 32,8 | 8. 10. 20 | 11. 22. 12. 21,0 | o. 25,3 | 8. 18. 20 | 11. 21. 55. 13,3 | o. 17,2 |
| 8. 2. 30 | 11. 22. 35. 11,0 | o. 32,7 | 8. 10. 30 | 11. 22. 11. 55,7 | o. 25,2 | 8. 18. 30 | 11. 21. 54. 56,1 | o. 17,0 |
| 8. 2. 40 | 11. 22. 34. 38,3 | o. 32,6 | 8. 10. 40 | 11. 22. 11. 30,5 | o. 25,0 | 8. 18. 40 | 11. 21. 54. 39,1 | o. 16,9 |
| 8. 2. 50 | 11. 22. 34. 5,7  | o. 32,4 | 8. 10. 50 | 11. 22. 11. 5,5  | o. 24,9 | 8. 18. 50 | 11. 21. 54. 22,2 | o. 16,7 |
| 8. 3. 0  | 11. 22. 33. 33,3 | o. 32,2 | 8. 11. 0  | 11. 22. 10. 40,6 | o. 24,7 | 8. 19. 0  | 11. 21. 54. 5,5  | o. 16,5 |
| 8. 3. 10 | 11. 22. 33. 1,1  | o. 32,1 | 8. 11. 10 | 11. 22. 10. 15,9 | o. 24,5 | 8. 19. 10 | 11. 21. 53. 49,0 | o. 16,3 |
| 8. 3. 20 | 11. 22. 32. 29,0 | o. 31,9 | 8. 11. 20 | 11. 22. 9. 51,4  | o. 24,4 | 8. 19. 20 | 11. 21. 53. 32,7 | o. 16,2 |
| 8. 3. 30 | 11. 22. 31. 57,1 | o. 31,8 | 8. 11. 30 | 11. 22. 9. 27,0  | o. 24,2 | 8. 19. 30 | 11. 21. 53. 16,5 | o. 16,0 |
| 8. 3. 40 | 11. 22. 31. 25,3 | o. 31,6 | 8. 11. 40 | 11. 22. 9. 2,8   | o. 24,0 | 8. 19. 40 | 11. 21. 53. 0,5  | o. 15,8 |
| 8. 3. 50 | 11. 22. 30. 53,7 | o. 31,5 | 8. 11. 50 | 11. 22. 8. 38,8  | o. 23,9 | 8. 19. 50 | 11. 21. 52. 44,7 | o. 15,6 |
| 8. 4. 0  | 11. 22. 30. 22,2 | o. 31,3 | 8. 12. 0  | 11. 22. 8. 14,9  | o. 23,7 | 8. 20. 0  | 11. 21. 52. 29,1 | o. 15,4 |
| 8. 4. 10 | 11. 22. 29. 50,9 | o. 31,2 | 8. 12. 10 | 11. 22. 7. 51,2  | o. 23,5 | 8. 20. 10 | 11. 21. 52. 13,7 | o. 15,3 |
| 8. 4. 20 | 11. 22. 29. 19,7 | o. 31,0 | 8. 12. 20 | 11. 22. 7. 27,7  | o. 23,4 | 8. 20. 20 | 11. 21. 51. 58,4 | o. 15,1 |
| 8. 4. 30 | 11. 22. 28. 48,7 | o. 30,9 | 8. 12. 30 | 11. 22. 7. 4,3   | o. 23,2 | 8. 20. 30 | 11. 21. 51. 43,3 | o. 14,9 |
| 8. 4. 40 | 11. 22. 28. 17,8 | o. 30,7 | 8. 12. 40 | 11. 22. 6. 41,1  | o. 23,0 | 8. 20. 40 | 11. 21. 51. 28,4 | o. 14,7 |
| 8. 4. 50 | 11. 22. 27. 47,1 | o. 30,6 | 8. 12. 50 | 11. 22. 6. 18,1  | o. 22,9 | 8. 20. 50 | 11. 21. 51. 13,7 | o. 14,5 |
| 8. 5. 0  | 11. 22. 27. 16,5 | o. 30,4 | 8. 13. 0  | 11. 22. 5. 55,2  | o. 22,7 | 8. 21. 0  | 11. 21. 50. 59,2 | o. 14,3 |
| 8. 5. 10 | 11. 22. 26. 46,1 | o. 30,3 | 8. 13. 10 | 11. 22. 5. 32,5  | o. 22,5 | 8. 21. 10 | 11. 21. 50. 44,9 | o. 14,2 |
| 8. 5. 20 | 11. 22. 26. 15,8 | o. 30,1 | 8. 13. 20 | 11. 22. 5. 10,0  | o. 22,4 | 8. 21. 20 | 11. 21. 50. 30,7 | o. 14,0 |
| 8. 5. 30 | 11. 22. 25. 45,7 | o. 29,9 | 8. 13. 30 | 11. 22. 4. 47,6  | o. 22,2 | 8. 21. 30 | 11. 21. 50. 16,7 | o. 13,8 |
| 8. 5. 40 | 11. 22. 25. 15,8 | o. 29,8 | 8. 13. 40 | 11. 22. 4. 25,4  | o. 22,0 | 8. 21. 40 | 11. 21. 50. 2,9  | o. 13,7 |
| 8. 5. 50 | 11. 22. 24. 46,0 | o. 29,7 | 8. 13. 50 | 11. 22. 4. 3,4   | o. 21,9 | 8. 21. 50 | 11. 21. 49. 49,2 | o. 13,5 |
| 8. 6. 0  | 11. 22. 24. 16,3 | o. 29,5 | 8. 14. 0  | 11. 22. 3. 41,5  | o. 21,7 | 8. 22. 0  | 11. 21. 49. 35,7 | o. 13,3 |
| 8. 6. 10 | 11. 22. 23. 46,8 | o. 29,3 | 8. 14. 10 | 11. 22. 3. 19,8  | o. 21,5 | 8. 22. 10 | 11. 21. 49. 22,4 | o. 13,1 |
| 8. 6. 20 | 11. 22. 23. 17,5 | o. 29,2 | 8. 14. 20 | 11. 22. 2. 58,3  | o. 21,3 | 8. 22. 20 | 11. 21. 49. 9,3  | o. 12,9 |
| 8. 6. 30 | 11. 22. 22. 48,3 | o. 29,0 | 8. 14. 30 | 11. 22. 2. 37,0  | o. 21,2 | 8. 22. 30 | 11. 21. 48. 56,4 | o. 12,7 |
| 8. 6. 40 | 11. 22. 22. 19,3 | o. 28,9 | 8. 14. 40 | 11. 22. 2. 15,8  | o. 21,0 | 8. 22. 40 | 11. 21. 48. 43,7 | o. 12,6 |
| 8. 6. 50 | 11. 22. 21. 50,4 | o. 28,7 | 8. 14. 50 | 11. 22. 1. 54,8  | o. 20,9 | 8. 22. 50 | 11. 21. 48. 31,1 | o. 12,4 |
| 8. 7. 0  | 11. 22. 21. 21,7 | o. 28,5 | 8. 15. 0  | 11. 22. 1. 33,9  | o. 20,7 | 8. 23. 0  | 11. 21. 48. 18,7 | o. 12,2 |
| 8. 7. 10 | 11. 22. 20. 53,2 | o. 28,4 | 8. 15. 10 | 11. 22. 1. 13,2  | o. 20,5 | 8. 23. 10 | 11. 21. 48. 6,5  | o. 12,0 |
| 8. 7. 20 | 11. 22. 20. 24,8 | o. 28,2 | 8. 15. 20 | 11. 22. 0. 52,7  | o. 20,3 | 8. 23. 20 | 11. 21. 47. 54,5 | o. 11,8 |
| 8. 7. 30 | 11. 22. 19. 56,6 | o. 28,1 | 8. 15. 30 | 11. 22. 0. 32,4  | o. 20,1 | 8. 23. 30 | 11. 21. 47. 42,7 | o. 11,7 |
| 8. 7. 40 | 11. 22. 19. 28,5 | o. 27,9 | 8. 15. 40 | 11. 22. 0. 12,3  | o. 20,0 | 8. 23. 40 | 11. 21. 47. 31,0 | o. 11,5 |
| 8. 7. 50 | 11. 22. 19. 0,6  | o. 27,8 | 8. 15. 50 | 11. 21. 59. 52,3 | o. 19,8 | 8. 23. 50 | 11. 21. 47. 19,5 | o. 11,3 |
| 8. 8. 0  | 11. 22. 18. 32,8 |         | 8. 16. 0  | 11. 21. 59. 32,5 |         | 8. 24. 0  | 11. 21. 47. 8,2  |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.        | Diff.   |          | Equation.        | Diff.  |           | Equation.        | Diff.   |
|-----------|------------------|---------|----------|------------------|--------|-----------|------------------|---------|
| s 0       | s 0              |         | s 0      | s 0              |        | s 0       | s 0              |         |
| 8. 24. 0  | II. 21. 47. 8,2  | 0. 11,1 | 9. 2. 0  | II. 21. 41. 44,7 | 0. 2,1 | 9. 10. 0  | II. 21. 43. 40,6 | 0. 7,2  |
| 8. 24. 10 | II. 21. 46. 57,1 | 0. 10,9 | 9. 2. 10 | II. 21. 41. 42,6 | 0. 1,9 | 9. 10. 10 | II. 21. 43. 47,8 | 0. 7,3  |
| 8. 24. 20 | II. 21. 46. 46,2 | 0. 10,8 | 9. 2. 20 | II. 21. 41. 40,7 | 0. 1,7 | 9. 10. 20 | II. 21. 43. 55,1 | 0. 7,5  |
| 8. 24. 30 | II. 21. 46. 35,4 | 0. 10,6 | 9. 2. 30 | II. 21. 41. 39,0 | 0. 1,5 | 9. 10. 30 | II. 21. 44. 2,6  | 0. 7,7  |
| 8. 24. 40 | II. 21. 46. 24,8 | 0. 10,3 | 9. 2. 40 | II. 21. 41. 37,5 | 0. 1,4 | 9. 10. 40 | II. 21. 44. 10,3 | 0. 7,9  |
| 8. 24. 50 | II. 21. 46. 14,5 | 0. 10,1 | 9. 2. 50 | II. 21. 41. 36,1 | 0. 1,2 | 9. 10. 50 | II. 21. 44. 18,2 | 0. 8,1  |
| 8. 25. 0  | II. 21. 46. 4,4  | 0. 10,0 | 9. 3. 0  | II. 21. 41. 34,9 | 0. 1,0 | 9. 11. 0  | II. 21. 44. 26,3 | 0. 8,3  |
| 8. 25. 10 | II. 21. 45. 54,4 | 0. 9,9  | 9. 3. 10 | II. 21. 41. 33,9 | 0. 0,8 | 9. 11. 10 | II. 21. 44. 34,6 | 0. 8,5  |
| 8. 25. 20 | II. 21. 45. 44,5 | 0. 9,7  | 9. 3. 20 | II. 21. 41. 33,1 | 0. 0,6 | 9. 11. 20 | II. 21. 44. 43,1 | 0. 8,7  |
| 8. 25. 30 | II. 21. 45. 34,8 | 0. 9,5  | 9. 3. 30 | II. 21. 41. 32,5 | 0. 0,4 | 9. 11. 30 | II. 21. 44. 51,8 | 0. 9,0  |
| 8. 25. 40 | II. 21. 45. 25,3 | 0. 9,2  | 9. 3. 40 | II. 21. 41. 32,1 | 0. 0,2 | 9. 11. 40 | II. 21. 45. 0,8  | 0. 9,2  |
| 8. 25. 50 | II. 21. 45. 16,1 | 0. 9,1  | 9. 3. 50 | II. 21. 41. 31,9 | 0. 0,0 | 9. 11. 50 | II. 21. 45. 10,0 | 0. 9,4  |
| 8. 26. 0  | II. 21. 45. 7,0  | 0. 8,9  | 9. 4. 0  | II. 21. 41. 31,9 | 0. 0,2 | 9. 12. 0  | II. 21. 45. 19,4 | 0. 9,5  |
| 8. 26. 10 | II. 21. 44. 58,1 | 0. 8,7  | 9. 4. 10 | II. 21. 41. 32,1 | 0. 0,4 | 9. 12. 10 | II. 21. 45. 28,9 | 0. 9,7  |
| 8. 26. 20 | II. 21. 44. 49,4 | 0. 8,5  | 9. 4. 20 | II. 21. 41. 32,5 | 0. 0,5 | 9. 12. 20 | II. 21. 45. 38,6 | 0. 10,0 |
| 8. 26. 30 | II. 21. 44. 40,9 | 0. 8,3  | 9. 4. 30 | II. 21. 41. 33,0 | 0. 0,7 | 9. 12. 30 | II. 21. 45. 48,6 | 0. 10,1 |
| 8. 26. 40 | II. 21. 44. 32,6 | 0. 8,2  | 9. 4. 40 | II. 21. 41. 33,7 | 0. 1,0 | 9. 12. 40 | II. 21. 45. 58,7 | 0. 10,3 |
| 8. 26. 50 | II. 21. 44. 24,4 | 0. 8,0  | 9. 4. 50 | II. 21. 41. 34,7 | 0. 1,2 | 9. 12. 50 | II. 21. 46. 9,0  | 0. 10,5 |
| 8. 27. 0  | II. 21. 44. 16,4 | 0. 7,8  | 9. 5. 0  | II. 21. 41. 35,9 | 0. 1,4 | 9. 13. 0  | II. 21. 46. 19,5 | 0. 10,7 |
| 8. 27. 10 | II. 21. 44. 8,6  | 0. 7,6  | 9. 5. 10 | II. 21. 41. 37,3 | 0. 1,5 | 9. 13. 10 | II. 21. 46. 30,2 | 0. 10,9 |
| 8. 27. 20 | II. 21. 44. 1,0  | 0. 7,4  | 9. 5. 20 | II. 21. 41. 38,8 | 0. 1,7 | 9. 13. 20 | II. 21. 46. 41,1 | 0. 11,1 |
| 8. 27. 30 | II. 21. 43. 53,6 | 0. 7,2  | 9. 5. 30 | II. 21. 41. 40,5 | 0. 2,0 | 9. 13. 30 | II. 21. 46. 52,2 | 0. 11,3 |
| 8. 27. 40 | II. 21. 43. 46,4 | 0. 7,0  | 9. 5. 40 | II. 21. 41. 42,5 | 0. 2,1 | 9. 13. 40 | II. 21. 47. 3,5  | 0. 11,5 |
| 8. 27. 50 | II. 21. 43. 39,4 | 0. 6,8  | 9. 5. 50 | II. 21. 41. 44,6 | 0. 2,3 | 9. 13. 50 | II. 21. 47. 15,0 | 0. 11,7 |
| 8. 28. 0  | II. 21. 43. 32,6 | 0. 6,7  | 9. 6. 0  | II. 21. 41. 46,9 | 0. 2,5 | 9. 14. 0  | II. 21. 47. 26,7 | 0. 11,9 |
| 8. 28. 10 | II. 21. 43. 25,9 | 0. 6,5  | 9. 6. 10 | II. 21. 41. 49,4 | 0. 2,7 | 9. 14. 10 | II. 21. 47. 38,6 | 0. 12,0 |
| 8. 28. 20 | II. 21. 43. 19,4 | 0. 6,3  | 9. 6. 20 | II. 21. 41. 52,1 | 0. 2,9 | 9. 14. 20 | II. 21. 47. 50,6 | 0. 12,2 |
| 8. 28. 30 | II. 21. 43. 13,1 | 0. 6,1  | 9. 6. 30 | II. 21. 41. 55,0 | 0. 3,1 | 9. 14. 30 | II. 21. 48. 2,8  | 0. 12,5 |
| 8. 28. 40 | II. 21. 43. 7,0  | 0. 5,9  | 9. 6. 40 | II. 21. 41. 58,1 | 0. 3,3 | 9. 14. 40 | II. 21. 48. 15,3 | 0. 12,7 |
| 8. 28. 50 | II. 21. 43. 1,1  | 0. 5,7  | 9. 6. 50 | II. 21. 42. 1,4  | 0. 3,5 | 9. 14. 50 | II. 21. 48. 28,0 | 0. 12,8 |
| 8. 29. 0  | II. 21. 42. 55,4 | 0. 5,5  | 9. 7. 0  | II. 21. 42. 4,9  | 0. 3,7 | 9. 15. 0  | II. 21. 48. 40,8 | 0. 13,0 |
| 8. 29. 10 | II. 21. 42. 49,9 | 0. 5,3  | 9. 7. 10 | II. 21. 42. 8,6  | 0. 3,8 | 9. 15. 10 | II. 21. 48. 53,8 | 0. 13,2 |
| 8. 29. 20 | II. 21. 42. 44,6 | 0. 5,2  | 9. 7. 20 | II. 21. 42. 12,4 | 0. 4,0 | 9. 15. 20 | II. 21. 49. 7,0  | 0. 13,5 |
| 8. 29. 30 | II. 21. 42. 39,4 | 0. 5,0  | 9. 7. 30 | II. 21. 42. 16,4 | 0. 4,2 | 9. 15. 30 | II. 21. 49. 20,5 | 0. 13,7 |
| 8. 29. 40 | II. 21. 42. 34,4 | 0. 4,8  | 9. 7. 40 | II. 21. 42. 20,6 | 0. 4,4 | 9. 15. 40 | II. 21. 49. 34,2 | 0. 13,9 |
| 8. 29. 50 | II. 21. 42. 29,6 | 0. 4,6  | 9. 7. 50 | II. 21. 42. 25,0 | 0. 4,7 | 9. 15. 50 | II. 21. 49. 48,1 | 0. 14,1 |
| 9. 0. 0   | II. 21. 42. 25,0 | 0. 4,4  | 9. 8. 0  | II. 21. 42. 29,7 | 0. 4,9 | 9. 16. 0  | II. 21. 50. 2,2  | 0. 14,2 |
| 9. 0. 10  | II. 21. 42. 20,6 | 0. 4,2  | 9. 8. 10 | II. 21. 42. 34,6 | 0. 5,0 | 9. 16. 10 | II. 21. 50. 16,4 | 0. 14,4 |
| 9. 0. 20  | II. 21. 42. 16,4 | 0. 4,0  | 9. 8. 20 | II. 21. 42. 39,6 | 0. 5,2 | 9. 16. 20 | II. 21. 50. 30,8 | 0. 14,6 |
| 9. 0. 30  | II. 21. 42. 12,4 | 0. 3,8  | 9. 8. 30 | II. 21. 42. 44,8 | 0. 5,4 | 9. 16. 30 | II. 21. 50. 45,4 | 0. 14,8 |
| 9. 0. 40  | II. 21. 42. 8,6  | 0. 3,7  | 9. 8. 40 | II. 21. 42. 50,2 | 0. 5,6 | 9. 16. 40 | II. 21. 51. 0,2  | 0. 15,0 |
| 9. 0. 50  | II. 21. 42. 4,9  | 0. 3,5  | 9. 8. 50 | II. 21. 42. 55,8 | 0. 5,8 | 9. 16. 50 | II. 21. 51. 15,2 | 0. 15,2 |
| 9. 1. 0   | II. 21. 42. 1,4  | 0. 3,3  | 9. 9. 0  | II. 21. 43. 1,6  | 0. 6,0 | 9. 17. 0  | II. 21. 51. 30,4 | 0. 15,4 |
| 9. 1. 10  | II. 21. 41. 58,1 | 0. 3,1  | 9. 9. 10 | II. 21. 43. 7,6  | 0. 6,2 | 9. 17. 10 | II. 21. 51. 45,8 | 0. 15,6 |
| 9. 1. 20  | II. 21. 41. 55,0 | 0. 2,8  | 9. 9. 20 | II. 21. 43. 13,8 | 0. 6,4 | 9. 17. 20 | II. 21. 52. 1,4  | 0. 15,8 |
| 9. 1. 30  | II. 21. 41. 52,2 | 0. 2,7  | 9. 9. 30 | II. 21. 43. 20,2 | 0. 6,6 | 9. 17. 30 | II. 21. 52. 17,2 | 0. 16,0 |
| 9. 1. 40  | II. 21. 41. 49,5 | 0. 2,5  | 9. 9. 40 | II. 21. 43. 26,8 | 0. 6,8 | 9. 17. 40 | II. 21. 52. 33,2 | 0. 16,2 |
| 9. 1. 50  | II. 21. 41. 47,0 | 0. 2,3  | 9. 9. 50 | II. 21. 43. 33,6 | 0. 7,0 | 9. 17. 50 | II. 21. 52. 49,4 | 0. 16,4 |
| 9. 2. 0   | II. 21. 41. 44,7 |         | 9. 10. 0 | II. 21. 43. 40,6 |        | 9. 18. 0  | II. 21. 53. 5,8  |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|           | Equation.        | Diff.   |           | Equation.        | Diff.   |            | Equation.        | Diff.   |
|-----------|------------------|---------|-----------|------------------|---------|------------|------------------|---------|
| s         | o                | '       | s         | o                | '       | s          | o                | '       |
| 9. 18. 0  | 11. 21. 53. 5,8  | o. 16,6 | 9. 26. 0  | 11. 22. 10. 2,3  | o. 25,9 | 10. 4. 0   | 11. 22. 34. 21,2 | o. 35,0 |
| 9. 18. 10 | 11. 21. 53. 22,4 | o. 16,8 | 9. 26. 10 | 11. 22. 10. 28,2 | o. 26,1 | 10. 4. 10  | 11. 22. 34. 56,2 | o. 35,1 |
| 9. 18. 20 | 11. 21. 53. 39,2 | o. 17,0 | 9. 26. 20 | 11. 22. 10. 54,3 | o. 26,3 | 10. 4. 20  | 11. 22. 35. 31,3 | o. 35,3 |
| 9. 18. 30 | 11. 21. 53. 56,2 | o. 17,2 | 9. 26. 30 | 11. 22. 11. 20,6 | o. 26,5 | 10. 4. 30  | 11. 22. 36. 6,6  | o. 35,5 |
| 9. 18. 40 | 11. 21. 54. 13,4 | o. 17,3 | 9. 26. 40 | 11. 22. 11. 47,1 | o. 26,7 | 10. 4. 40  | 11. 22. 36. 42,1 | o. 35,7 |
| 9. 18. 50 | 11. 21. 54. 30,7 | o. 17,6 | 9. 26. 50 | 11. 22. 12. 13,8 | o. 26,9 | 10. 4. 50  | 11. 22. 37. 17,8 | o. 35,9 |
| 9. 19. 0  | 11. 21. 54. 48,3 | o. 17,7 | 9. 27. 0  | 11. 22. 12. 40,7 | o. 27,1 | 10. 5. 0   | 11. 22. 37. 53,7 | o. 36,1 |
| 9. 19. 10 | 11. 21. 55. 6,0  | o. 17,9 | 9. 27. 10 | 11. 22. 13. 7,8  | o. 27,3 | 10. 5. 10  | 11. 22. 38. 29,8 | o. 36,3 |
| 9. 19. 20 | 11. 21. 55. 23,9 | o. 18,1 | 9. 27. 20 | 11. 22. 13. 35,1 | o. 27,5 | 10. 5. 20  | 11. 22. 39. 6,1  | o. 36,4 |
| 9. 19. 30 | 11. 21. 55. 42,0 | o. 18,4 | 9. 27. 30 | 11. 22. 14. 2,6  | o. 27,7 | 10. 5. 30  | 11. 22. 39. 42,5 | o. 36,6 |
| 9. 19. 40 | 11. 21. 56. 0,4  | o. 18,6 | 9. 27. 40 | 11. 22. 14. 30,3 | o. 27,8 | 10. 5. 40  | 11. 22. 40. 19,1 | o. 36,8 |
| 9. 19. 50 | 11. 21. 56. 19,0 | o. 18,8 | 9. 27. 50 | 11. 22. 14. 58,1 | o. 28,0 | 10. 5. 50  | 11. 22. 40. 55,9 | o. 37,0 |
| 9. 20. 0  | 11. 21. 56. 37,8 | o. 19,0 | 9. 28. 0  | 11. 22. 15. 26,1 | o. 28,2 | 10. 6. 0   | 11. 22. 41. 32,9 | o. 37,2 |
| 9. 20. 10 | 11. 21. 56. 56,8 | o. 19,1 | 9. 28. 10 | 11. 22. 15. 54,3 | o. 28,4 | 10. 6. 10  | 11. 22. 42. 10,1 | o. 37,3 |
| 9. 20. 20 | 11. 21. 57. 15,9 | o. 19,3 | 9. 28. 20 | 11. 22. 16. 22,7 | o. 28,6 | 10. 6. 20  | 11. 22. 42. 47,4 | o. 37,5 |
| 9. 20. 30 | 11. 21. 57. 35,2 | o. 19,6 | 9. 28. 30 | 11. 22. 16. 51,3 | o. 28,8 | 10. 6. 30  | 11. 22. 43. 24,9 | o. 37,7 |
| 9. 20. 40 | 11. 21. 57. 54,8 | o. 19,7 | 9. 28. 40 | 11. 22. 17. 20,1 | o. 29,0 | 10. 6. 40  | 11. 22. 44. 2,6  | o. 37,9 |
| 9. 20. 50 | 11. 21. 58. 14,5 | o. 19,9 | 9. 28. 50 | 11. 22. 17. 49,1 | o. 29,2 | 10. 6. 50  | 11. 22. 44. 40,5 | o. 38,1 |
| 9. 21. 0  | 11. 21. 58. 34,4 | o. 20,1 | 9. 29. 0  | 11. 22. 18. 18,3 | o. 29,4 | 10. 7. 0   | 11. 22. 45. 18,6 | o. 38,3 |
| 9. 21. 10 | 11. 21. 58. 54,5 | o. 20,3 | 9. 29. 10 | 11. 22. 18. 47,7 | o. 29,6 | 10. 7. 10  | 11. 22. 45. 56,9 | o. 38,4 |
| 9. 21. 20 | 11. 21. 59. 14,8 | o. 20,5 | 9. 29. 20 | 11. 22. 19. 17,3 | o. 29,7 | 10. 7. 20  | 11. 22. 46. 35,3 | o. 38,6 |
| 9. 21. 30 | 11. 21. 59. 35,3 | o. 20,7 | 9. 29. 30 | 11. 22. 19. 47,0 | o. 29,9 | 10. 7. 30  | 11. 22. 47. 13,9 | o. 38,8 |
| 9. 21. 40 | 11. 21. 59. 56,0 | o. 20,9 | 9. 29. 40 | 11. 22. 20. 16,9 | o. 30,1 | 10. 7. 40  | 11. 22. 47. 52,7 | o. 39,0 |
| 9. 21. 50 | 11. 22. 0. 16,9  | o. 21,1 | 9. 29. 50 | 11. 22. 20. 47,0 | o. 30,3 | 10. 7. 50  | 11. 22. 48. 31,7 | o. 39,1 |
| 9. 22. 0  | 11. 22. 0. 38,0  | o. 21,3 | 10. 0. 0  | 11. 22. 21. 17,3 | o. 30,5 | 10. 8. 0   | 11. 22. 49. 10,8 | o. 39,3 |
| 9. 22. 10 | 11. 22. 0. 59,3  | o. 21,5 | 10. 0. 10 | 11. 22. 21. 47,8 | o. 30,7 | 10. 8. 10  | 11. 22. 49. 50,1 | o. 39,5 |
| 9. 22. 20 | 11. 22. 1. 20,8  | o. 21,6 | 10. 0. 20 | 11. 22. 22. 18,5 | o. 30,9 | 10. 8. 20  | 11. 22. 50. 29,6 | o. 39,7 |
| 9. 22. 30 | 11. 22. 1. 42,4  | o. 21,8 | 10. 0. 30 | 11. 22. 22. 49,4 | o. 31,1 | 10. 8. 30  | 11. 22. 51. 9,3  | o. 39,9 |
| 9. 22. 40 | 11. 22. 2. 4,2   | o. 22,1 | 10. 0. 40 | 11. 22. 23. 20,5 | o. 31,3 | 10. 8. 40  | 11. 22. 51. 49,2 | o. 40,0 |
| 9. 22. 50 | 11. 22. 2. 26,3  | o. 22,3 | 10. 0. 50 | 11. 22. 23. 51,8 | o. 31,4 | 10. 8. 50  | 11. 22. 52. 29,2 | o. 40,2 |
| 9. 23. 0  | 11. 22. 2. 48,6  | o. 22,5 | 10. 1. 0  | 11. 22. 24. 23,2 | o. 31,6 | 10. 9. 0   | 11. 22. 53. 9,4  | o. 40,4 |
| 9. 23. 10 | 11. 22. 3. 11,1  | o. 22,7 | 10. 1. 10 | 11. 22. 24. 54,8 | o. 31,8 | 10. 9. 10  | 11. 22. 53. 49,8 | o. 40,6 |
| 9. 23. 20 | 11. 22. 3. 33,8  | o. 22,8 | 10. 1. 20 | 11. 22. 25. 26,6 | o. 32,0 | 10. 9. 20  | 11. 22. 54. 30,4 | o. 40,7 |
| 9. 23. 30 | 11. 22. 3. 56,6  | o. 23,0 | 10. 1. 30 | 11. 22. 25. 58,6 | o. 32,2 | 10. 9. 30  | 11. 22. 55. 11,1 | o. 40,9 |
| 9. 23. 40 | 11. 22. 4. 19,6  | o. 23,2 | 10. 1. 40 | 11. 22. 26. 30,8 | o. 32,4 | 10. 9. 40  | 11. 22. 55. 52,0 | o. 41,1 |
| 9. 23. 50 | 11. 22. 4. 42,8  | o. 23,4 | 10. 1. 50 | 11. 22. 27. 3,2  | o. 32,6 | 10. 9. 50  | 11. 22. 56. 33,1 | o. 41,3 |
| 9. 24. 0  | 11. 22. 5. 6,2   | o. 23,6 | 10. 2. 0  | 11. 22. 27. 35,8 | o. 32,8 | 10. 10. 0  | 11. 22. 57. 14,4 | o. 41,4 |
| 9. 24. 10 | 11. 22. 5. 29,8  | o. 23,8 | 10. 2. 10 | 11. 22. 28. 8,6  | o. 33,0 | 10. 10. 10 | 11. 22. 57. 55,8 | o. 41,6 |
| 9. 24. 20 | 11. 22. 5. 53,6  | o. 24,0 | 10. 2. 20 | 11. 22. 28. 41,6 | o. 33,1 | 10. 10. 20 | 11. 22. 58. 37,4 | o. 41,8 |
| 9. 24. 30 | 11. 22. 6. 17,6  | o. 24,2 | 10. 2. 30 | 11. 22. 29. 14,7 | o. 33,3 | 10. 10. 30 | 11. 22. 59. 19,2 | o. 42,0 |
| 9. 24. 40 | 11. 22. 6. 41,8  | o. 24,4 | 10. 2. 40 | 11. 22. 29. 48,0 | o. 33,5 | 10. 10. 40 | 11. 23. 0. 1,2   | o. 42,1 |
| 9. 24. 50 | 11. 22. 7. 6,2   | o. 24,6 | 10. 2. 50 | 11. 22. 30. 21,5 | o. 33,7 | 10. 10. 50 | 11. 23. 0. 43,3  | o. 42,3 |
| 9. 25. 0  | 11. 22. 7. 30,8  | o. 24,8 | 10. 3. 0  | 11. 22. 30. 55,2 | o. 33,9 | 10. 11. 0  | 11. 23. 1. 25,6  | o. 42,5 |
| 9. 25. 10 | 11. 22. 7. 55,6  | o. 25,0 | 10. 3. 10 | 11. 22. 31. 29,1 | o. 34,1 | 10. 11. 10 | 11. 23. 2. 8,1   | o. 42,6 |
| 9. 25. 20 | 11. 22. 8. 20,6  | o. 25,2 | 10. 3. 20 | 11. 22. 32. 3,2  | o. 34,2 | 10. 11. 20 | 11. 23. 2. 50,7  | o. 42,8 |
| 9. 25. 30 | 11. 22. 8. 45,8  | o. 25,3 | 10. 3. 30 | 11. 22. 32. 37,4 | o. 34,4 | 10. 11. 30 | 11. 23. 3. 33,5  | o. 43,0 |
| 9. 25. 40 | 11. 22. 9. 11,1  | o. 25,5 | 10. 3. 40 | 11. 22. 33. 11,8 | o. 34,6 | 10. 11. 40 | 11. 23. 4. 16,5  | o. 43,2 |
| 9. 25. 50 | 11. 22. 9. 36,6  | o. 25,7 | 10. 3. 50 | 11. 22. 33. 46,4 | o. 34,8 | 10. 11. 50 | 11. 23. 4. 59,7  | o. 43,3 |
| 9. 26. 0  | 11. 22. 10. 2,3  |         | 10. 4. 0  | 11. 22. 34. 21,2 |         | 10. 12. 0  | 11. 23. 5. 43,0  |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|            | Equation.        | Diff.   |            | Equation.        | Diff.   |            | Equation.        | Diff.   |
|------------|------------------|---------|------------|------------------|---------|------------|------------------|---------|
| s o ' "    | s o ' "          |         | s o ' "    | s o ' "          |         | s o ' "    | s o ' "          |         |
| 10. 12. 0  | 11. 23. 5. 43,0  | 0. 43,5 | 10. 20. 0  | 11. 23. 43. 36,2 | 0. 51,2 | 10. 28. 0  | 11. 24. 27. 18,5 | 0. 58,0 |
| 10. 12. 10 | 11. 23. 6. 26,5  | 0. 43,7 | 10. 20. 10 | 11. 23. 44. 27,4 | 0. 51,4 | 10. 28. 10 | 11. 24. 28. 16,5 | 0. 58,1 |
| 10. 12. 20 | 11. 23. 7. 10,2  | 0. 43,8 | 10. 20. 20 | 11. 23. 45. 18,8 | 0. 51,6 | 10. 28. 20 | 11. 24. 29. 14,6 | 0. 58,2 |
| 10. 12. 30 | 11. 23. 7. 54,0  | 0. 44,0 | 10. 20. 30 | 11. 23. 46. 10,4 | 0. 51,7 | 10. 28. 30 | 11. 24. 30. 12,8 | 0. 58,4 |
| 10. 12. 40 | 11. 23. 8. 38,0  | 0. 44,2 | 10. 20. 40 | 11. 23. 47. 2,1  | 0. 51,8 | 10. 28. 40 | 11. 24. 31. 11,2 | 0. 58,5 |
| 10. 12. 50 | 11. 23. 9. 22,2  | 0. 44,4 | 10. 20. 50 | 11. 23. 47. 53,9 | 0. 52,0 | 10. 28. 50 | 11. 24. 32. 9,7  | 0. 58,6 |
| 10. 13. 0  | 11. 23. 10. 6,6  | 0. 44,5 | 10. 21. 0  | 11. 23. 48. 45,9 | 0. 52,1 | 10. 29. 0  | 11. 24. 33. 8,3  | 0. 58,7 |
| 10. 13. 10 | 11. 23. 10. 51,1 | 0. 44,7 | 10. 21. 10 | 11. 23. 49. 38,0 | 0. 52,3 | 10. 29. 10 | 11. 24. 34. 7,0  | 0. 58,8 |
| 10. 13. 20 | 11. 23. 11. 35,8 | 0. 44,9 | 10. 21. 20 | 11. 23. 50. 30,3 | 0. 52,5 | 10. 29. 20 | 11. 24. 35. 5,8  | 0. 59,0 |
| 10. 13. 30 | 11. 23. 12. 20,7 | 0. 45,0 | 10. 21. 30 | 11. 23. 51. 22,8 | 0. 52,6 | 10. 29. 30 | 11. 24. 36. 4,8  | 0. 59,1 |
| 10. 13. 40 | 11. 23. 13. 5,7  | 0. 45,2 | 10. 21. 40 | 11. 23. 52. 15,4 | 0. 52,7 | 10. 29. 40 | 11. 24. 37. 3,9  | 0. 59,2 |
| 10. 13. 50 | 11. 23. 13. 50,9 | 0. 45,3 | 10. 21. 50 | 11. 23. 53. 8,1  | 0. 52,9 | 10. 29. 50 | 11. 24. 38. 3,1  | 0. 59,4 |
| 10. 14. 0  | 11. 23. 14. 36,2 | 0. 45,5 | 10. 22. 0  | 11. 23. 54. 1,0  | 0. 53,0 | 11. 0. 0   | 11. 24. 39. 2,5  | 0. 59,5 |
| 10. 14. 10 | 11. 23. 15. 21,7 | 0. 45,6 | 10. 22. 10 | 11. 23. 54. 54,0 | 0. 53,2 | 11. 0. 10  | 11. 24. 40. 2,0  | 0. 59,6 |
| 10. 14. 20 | 11. 23. 16. 7,3  | 0. 45,8 | 10. 22. 20 | 11. 23. 55. 47,2 | 0. 53,3 | 11. 0. 20  | 11. 24. 41. 1,6  | 0. 59,7 |
| 10. 14. 30 | 11. 23. 16. 53,1 | 0. 46,0 | 10. 22. 30 | 11. 23. 56. 40,5 | 0. 53,5 | 11. 0. 30  | 11. 24. 42. 1,3  | 0. 59,8 |
| 10. 14. 40 | 11. 23. 17. 39,1 | 0. 46,1 | 10. 22. 40 | 11. 23. 57. 34,0 | 0. 53,6 | 11. 0. 40  | 11. 24. 43. 1,1  | 1. 0,0  |
| 10. 14. 50 | 11. 23. 18. 25,2 | 0. 46,3 | 10. 22. 50 | 11. 23. 58. 27,6 | 0. 53,8 | 11. 0. 50  | 11. 24. 44. 1,1  | 1. 0,1  |
| 10. 15. 0  | 11. 23. 19. 11,5 | 0. 46,5 | 10. 23. 0  | 11. 23. 59. 21,4 | 0. 53,9 | 11. 1. 0   | 11. 24. 45. 1,2  | 1. 0,2  |
| 10. 15. 10 | 11. 23. 19. 58,0 | 0. 46,6 | 10. 23. 10 | 11. 24. 0. 15,3  | 0. 54,0 | 11. 1. 10  | 11. 24. 46. 1,4  | 1. 0,3  |
| 10. 15. 20 | 11. 23. 20. 44,6 | 0. 46,8 | 10. 23. 20 | 11. 24. 1. 9,3   | 0. 54,2 | 11. 1. 20  | 11. 24. 47. 1,7  | 1. 0,4  |
| 10. 15. 30 | 11. 23. 21. 31,4 | 0. 47,0 | 10. 23. 30 | 11. 24. 2. 3,5   | 0. 54,3 | 11. 1. 30  | 11. 24. 48. 2,1  | 1. 0,5  |
| 10. 15. 40 | 11. 23. 22. 18,4 | 0. 47,2 | 10. 23. 40 | 11. 24. 2. 57,8  | 0. 54,5 | 11. 1. 40  | 11. 24. 49. 2,6  | 1. 0,7  |
| 10. 15. 50 | 11. 23. 23. 5,6  | 0. 47,3 | 10. 23. 50 | 11. 24. 3. 52,3  | 0. 54,6 | 11. 1. 50  | 11. 24. 50. 3,3  | 1. 0,8  |
| 10. 16. 0  | 11. 23. 23. 52,9 | 0. 47,5 | 10. 24. 0  | 11. 24. 4. 46,9  | 0. 54,7 | 11. 2. 0   | 11. 24. 51. 4,1  | 1. 0,9  |
| 10. 16. 10 | 11. 23. 24. 40,4 | 0. 47,6 | 10. 24. 10 | 11. 24. 5. 41,6  | 0. 54,9 | 11. 2. 10  | 11. 24. 52. 5,0  | 1. 1,0  |
| 10. 16. 20 | 11. 23. 25. 28,0 | 0. 47,8 | 10. 24. 20 | 11. 24. 6. 36,5  | 0. 55,0 | 11. 2. 20  | 11. 24. 53. 6,0  | 1. 1,1  |
| 10. 16. 30 | 11. 23. 26. 15,8 | 0. 48,0 | 10. 24. 30 | 11. 24. 7. 31,5  | 0. 55,2 | 11. 2. 30  | 11. 24. 54. 7,1  | 1. 1,2  |
| 10. 16. 40 | 11. 23. 27. 3,8  | 0. 48,1 | 10. 24. 40 | 11. 24. 8. 26,7  | 0. 55,3 | 11. 2. 40  | 11. 24. 55. 8,3  | 1. 1,4  |
| 10. 16. 50 | 11. 23. 27. 51,9 | 0. 48,3 | 10. 24. 50 | 11. 24. 9. 22,0  | 0. 55,5 | 11. 2. 50  | 11. 24. 56. 9,7  | 1. 1,5  |
| 10. 17. 0  | 11. 23. 28. 40,2 | 0. 48,4 | 10. 25. 0  | 11. 24. 10. 17,5 | 0. 55,6 | 11. 3. 0   | 11. 24. 57. 11,2 | 1. 1,6  |
| 10. 17. 10 | 11. 23. 29. 28,6 | 0. 48,6 | 10. 25. 10 | 11. 24. 11. 13,1 | 0. 55,7 | 11. 3. 10  | 11. 24. 58. 12,8 | 1. 1,7  |
| 10. 17. 20 | 11. 23. 30. 17,2 | 0. 48,8 | 10. 25. 20 | 11. 24. 12. 8,8  | 0. 55,8 | 11. 3. 20  | 11. 24. 59. 14,5 | 1. 1,8  |
| 10. 17. 30 | 11. 23. 31. 6,0  | 0. 48,9 | 10. 25. 30 | 11. 24. 13. 4,6  | 0. 56,0 | 11. 3. 30  | 11. 25. 0. 16,3  | 1. 1,9  |
| 10. 17. 40 | 11. 23. 31. 54,9 | 0. 49,1 | 10. 25. 40 | 11. 24. 14. 0,6  | 0. 56,1 | 11. 3. 40  | 11. 25. 1. 18,2  | 1. 1,9  |
| 10. 17. 50 | 11. 23. 32. 44,0 | 0. 49,2 | 10. 25. 50 | 11. 24. 14. 56,7 | 0. 56,3 | 11. 3. 50  | 11. 25. 2. 20,1  | 1. 2,1  |
| 10. 18. 0  | 11. 23. 33. 33,2 | 0. 49,4 | 10. 26. 0  | 11. 24. 15. 53,0 | 0. 56,4 | 11. 4. 0   | 11. 25. 3. 22,2  | 1. 2,2  |
| 10. 18. 10 | 11. 23. 34. 22,6 | 0. 49,5 | 10. 26. 10 | 11. 24. 16. 49,4 | 0. 56,5 | 11. 4. 10  | 11. 25. 4. 24,4  | 1. 2,3  |
| 10. 18. 20 | 11. 23. 35. 12,1 | 0. 49,7 | 10. 26. 20 | 11. 24. 17. 45,9 | 0. 56,7 | 11. 4. 20  | 11. 25. 5. 26,7  | 1. 2,4  |
| 10. 18. 30 | 11. 23. 36. 1,8  | 0. 49,9 | 10. 26. 30 | 11. 24. 18. 42,6 | 0. 56,8 | 11. 4. 30  | 11. 25. 6. 29,1  | 1. 2,6  |
| 10. 18. 40 | 11. 23. 36. 51,7 | 0. 50,0 | 10. 26. 40 | 11. 24. 19. 39,4 | 0. 56,9 | 11. 4. 40  | 11. 25. 7. 31,7  | 1. 2,7  |
| 10. 18. 50 | 11. 23. 37. 41,7 | 0. 50,2 | 10. 26. 50 | 11. 24. 20. 36,3 | 0. 57,1 | 11. 4. 50  | 11. 25. 8. 34,4  | 1. 2,7  |
| 10. 19. 0  | 11. 23. 38. 31,9 | 0. 50,3 | 10. 27. 0  | 11. 24. 21. 33,4 | 0. 57,2 | 11. 5. 0   | 11. 25. 9. 37,1  | 1. 2,8  |
| 10. 19. 10 | 11. 23. 39. 22,2 | 0. 50,5 | 10. 27. 10 | 11. 24. 22. 30,6 | 0. 57,3 | 11. 5. 10  | 11. 25. 10. 39,9 | 1. 2,9  |
| 10. 19. 20 | 11. 23. 40. 12,7 | 0. 50,7 | 10. 27. 20 | 11. 24. 23. 27,9 | 0. 57,5 | 11. 5. 20  | 11. 25. 11. 42,8 | 1. 3,1  |
| 10. 19. 30 | 11. 23. 41. 3,4  | 0. 50,8 | 10. 27. 30 | 11. 24. 24. 25,4 | 0. 57,6 | 11. 5. 30  | 11. 25. 12. 45,9 | 1. 3,2  |
| 10. 19. 40 | 11. 23. 41. 54,2 | 0. 50,9 | 10. 27. 40 | 11. 24. 25. 23,0 | 0. 57,7 | 11. 5. 40  | 11. 25. 13. 49,1 | 1. 3,3  |
| 10. 19. 50 | 11. 23. 42. 45,1 | 0. 51,1 | 10. 27. 50 | 11. 24. 26. 20,7 | 0. 57,8 | 11. 5. 50  | 11. 25. 14. 52,4 | 1. 3,4  |
| 10. 20. 0  | 11. 23. 43. 36,2 |         | 10. 28. 0  | 11. 24. 27. 18,5 |         | 11. 6. 0   | 11. 25. 15. 55,8 |         |



## Continuation of TABLE XXXIII.

Equation of the Center.

ARGUMENT. Anomaly corrected, or Argument XXV.

|            | Equation.        | Diff.  |            | Equation.        | Diff.   |            | Equation.        | Diff.   |
|------------|------------------|--------|------------|------------------|---------|------------|------------------|---------|
| s          | s                |        | s          | s                |         | s          | s                |         |
| II. 6. 0   | II. 25. 15. 55,8 | I. 3,5 | II. 14. 0  | II. 26. 8. 24,3  | I. 7,5  | II. 22. 0  | II. 27. 3. 31,6  | I. 10,0 |
| II. 6. 10  | II. 25. 16. 59,3 | I. 3,6 | II. 14. 10 | II. 26. 9. 31,8  | I. 7,6  | II. 22. 10 | II. 27. 4. 41,6  | I. 10,1 |
| II. 6. 20  | II. 25. 18. 2,9  | I. 3,7 | II. 14. 20 | II. 26. 10. 39,4 | I. 7,7  | II. 22. 20 | II. 27. 5. 51,7  | I. 10,1 |
| II. 6. 30  | II. 25. 19. 6,6  | I. 3,8 | II. 14. 30 | II. 26. 11. 47,1 | I. 7,7  | II. 22. 30 | II. 27. 7. 1,8   | I. 10,2 |
| II. 6. 40  | II. 25. 20. 10,4 | I. 3,9 | II. 14. 40 | II. 26. 12. 54,8 | I. 7,8  | II. 22. 40 | II. 27. 8. 12,0  | I. 10,2 |
| II. 6. 50  | II. 25. 21. 14,3 | I. 4,0 | II. 14. 50 | II. 26. 14. 2,6  | I. 7,9  | II. 22. 50 | II. 27. 9. 22,2  | I. 10,2 |
| II. 7. 0   | II. 25. 22. 18,3 | I. 4,0 | II. 15. 0  | II. 26. 15. 10,5 | I. 7,9  | II. 23. 0  | II. 27. 10. 32,4 | I. 10,2 |
| II. 7. 10  | II. 25. 23. 22,3 | I. 4,1 | II. 15. 10 | II. 26. 16. 18,4 | I. 8,0  | II. 23. 10 | II. 27. 11. 42,6 | I. 10,3 |
| II. 7. 20  | II. 25. 24. 26,4 | I. 4,3 | II. 15. 20 | II. 26. 17. 26,4 | I. 8,1  | II. 23. 20 | II. 27. 12. 52,9 | I. 10,3 |
| II. 7. 30  | II. 25. 25. 30,7 | I. 4,4 | II. 15. 30 | II. 26. 18. 34,5 | I. 8,1  | II. 23. 30 | II. 27. 14. 3,2  | I. 10,3 |
| II. 7. 40  | II. 25. 26. 35,1 | I. 4,4 | II. 15. 40 | II. 26. 19. 42,6 | I. 8,2  | II. 23. 40 | II. 27. 15. 13,5 | I. 10,4 |
| II. 7. 50  | II. 25. 27. 39,5 | I. 4,5 | II. 15. 50 | II. 26. 20. 50,8 | I. 8,3  | II. 23. 50 | II. 27. 16. 23,9 | I. 10,4 |
| II. 8. 0   | II. 25. 28. 44,0 | I. 4,6 | II. 16. 0  | II. 26. 21. 59,1 | I. 8,3  | II. 24. 0  | II. 27. 17. 34,3 | I. 10,4 |
| II. 8. 10  | II. 25. 29. 48,6 | I. 4,7 | II. 16. 10 | II. 26. 23. 7,4  | I. 8,4  | II. 24. 10 | II. 27. 18. 44,7 | I. 10,4 |
| II. 8. 20  | II. 25. 30. 53,3 | I. 4,8 | II. 16. 20 | II. 26. 24. 15,8 | I. 8,5  | II. 24. 20 | II. 27. 19. 55,1 | I. 10,5 |
| II. 8. 30  | II. 25. 31. 58,1 | I. 4,9 | II. 16. 30 | II. 26. 25. 24,3 | I. 8,5  | II. 24. 30 | II. 27. 21. 5,6  | I. 10,5 |
| II. 8. 40  | II. 25. 33. 3,0  | I. 5,0 | II. 16. 40 | II. 26. 26. 32,8 | I. 8,6  | II. 24. 40 | II. 27. 22. 16,1 | I. 10,5 |
| II. 8. 50  | II. 25. 34. 8,0  | I. 5,1 | II. 16. 50 | II. 26. 27. 41,4 | I. 8,6  | II. 24. 50 | II. 27. 23. 26,6 | I. 10,5 |
| II. 9. 0   | II. 25. 35. 13,1 | I. 5,2 | II. 17. 0  | II. 26. 28. 50,0 | I. 8,7  | II. 25. 0  | II. 27. 24. 37,1 | I. 10,5 |
| II. 9. 10  | II. 25. 36. 18,3 | I. 5,3 | II. 17. 10 | II. 26. 29. 58,7 | I. 8,7  | II. 25. 10 | II. 27. 25. 47,6 | I. 10,6 |
| II. 9. 20  | II. 25. 37. 23,6 | I. 5,4 | II. 17. 20 | II. 26. 31. 7,4  | I. 8,8  | II. 25. 20 | II. 27. 26. 58,2 | I. 10,6 |
| II. 9. 30  | II. 25. 38. 29,0 | I. 5,4 | II. 17. 30 | II. 26. 32. 16,2 | I. 8,8  | II. 25. 30 | II. 27. 28. 8,8  | I. 10,6 |
| II. 9. 40  | II. 25. 39. 34,4 | I. 5,5 | II. 17. 40 | II. 26. 33. 25,0 | I. 8,9  | II. 25. 40 | II. 27. 29. 19,4 | I. 10,6 |
| II. 9. 50  | II. 25. 40. 39,9 | I. 5,6 | II. 17. 50 | II. 26. 34. 33,9 | I. 8,9  | II. 25. 50 | II. 27. 30. 30,0 | I. 10,7 |
| II. 10. 0  | II. 25. 41. 45,5 | I. 5,7 | II. 18. 0  | II. 26. 35. 42,8 | I. 9,0  | II. 26. 0  | II. 27. 31. 40,7 | I. 10,7 |
| II. 10. 10 | II. 25. 42. 51,2 | I. 5,8 | II. 18. 10 | II. 26. 36. 51,8 | I. 9,1  | II. 26. 10 | II. 27. 32. 51,4 | I. 10,7 |
| II. 10. 20 | II. 25. 43. 57,0 | I. 5,9 | II. 18. 20 | II. 26. 38. 0,9  | I. 9,1  | II. 26. 20 | II. 27. 34. 2,1  | I. 10,7 |
| II. 10. 30 | II. 25. 45. 2,9  | I. 5,9 | II. 18. 30 | II. 26. 39. 10,0 | I. 9,2  | II. 26. 30 | II. 27. 35. 12,8 | I. 10,7 |
| II. 10. 40 | II. 25. 46. 8,8  | I. 6,0 | II. 18. 40 | II. 26. 40. 19,2 | I. 9,2  | II. 26. 40 | II. 27. 36. 23,5 | I. 10,7 |
| II. 10. 50 | II. 25. 47. 14,8 | I. 6,1 | II. 18. 50 | II. 26. 41. 28,4 | I. 9,2  | II. 26. 50 | II. 27. 37. 34,2 | I. 10,7 |
| II. 11. 0  | II. 25. 48. 20,9 | I. 6,2 | II. 19. 0  | II. 26. 42. 37,6 | I. 9,3  | II. 27. 0  | II. 27. 38. 44,9 | I. 10,8 |
| II. 11. 10 | II. 25. 49. 27,1 | I. 6,2 | II. 19. 10 | II. 26. 43. 46,9 | I. 9,3  | II. 27. 10 | II. 27. 39. 55,7 | I. 10,8 |
| II. 11. 20 | II. 25. 50. 33,3 | I. 6,3 | II. 19. 20 | II. 26. 44. 56,2 | I. 9,4  | II. 27. 20 | II. 27. 41. 6,5  | I. 10,8 |
| II. 11. 30 | II. 25. 51. 39,6 | I. 6,4 | II. 19. 30 | II. 26. 46. 5,6  | I. 9,5  | II. 27. 30 | II. 27. 42. 17,3 | I. 10,8 |
| II. 11. 40 | II. 25. 52. 46,0 | I. 6,5 | II. 19. 40 | II. 26. 47. 15,1 | I. 9,5  | II. 27. 40 | II. 27. 43. 28,1 | I. 10,8 |
| II. 11. 50 | II. 25. 53. 52,5 | I. 6,6 | II. 19. 50 | II. 26. 48. 24,6 | I. 9,5  | II. 27. 50 | II. 27. 44. 38,9 | I. 10,8 |
| II. 12. 0  | II. 25. 54. 59,1 | I. 6,7 | II. 20. 0  | II. 26. 49. 34,1 | I. 9,6  | II. 28. 0  | II. 27. 45. 49,7 | I. 10,8 |
| II. 12. 10 | II. 25. 56. 5,8  | I. 6,8 | II. 20. 10 | II. 26. 50. 43,7 | I. 9,6  | II. 28. 10 | II. 27. 47. 0,5  | I. 10,8 |
| II. 12. 20 | II. 25. 57. 12,6 | I. 6,8 | II. 20. 20 | II. 26. 51. 53,3 | I. 9,6  | II. 28. 20 | II. 27. 48. 11,3 | I. 10,8 |
| II. 12. 30 | II. 25. 58. 19,4 | I. 7,0 | II. 20. 30 | II. 26. 53. 2,9  | I. 9,7  | II. 28. 30 | II. 27. 49. 22,1 | I. 10,8 |
| II. 12. 40 | II. 25. 59. 26,4 | I. 7,0 | II. 20. 40 | II. 26. 54. 12,6 | I. 9,7  | II. 28. 40 | II. 27. 50. 32,9 | I. 10,9 |
| II. 12. 50 | II. 26. 0. 33,4  | I. 7,1 | II. 20. 50 | II. 26. 55. 22,3 | I. 9,8  | II. 28. 50 | II. 27. 51. 43,8 | I. 10,9 |
| II. 13. 0  | II. 26. 1. 40,5  | I. 7,1 | II. 21. 0  | II. 26. 56. 32,1 | I. 9,8  | II. 29. 0  | II. 27. 52. 54,7 | I. 10,9 |
| II. 13. 10 | II. 26. 2. 47,6  | I. 7,2 | II. 21. 10 | II. 26. 57. 41,9 | I. 9,9  | II. 29. 10 | II. 27. 54. 5,6  | I. 10,9 |
| II. 13. 20 | II. 26. 3. 54,8  | I. 7,3 | II. 21. 20 | II. 26. 58. 51,8 | I. 9,9  | II. 29. 20 | II. 27. 55. 16,5 | I. 10,9 |
| II. 13. 30 | II. 26. 5. 2,1   | I. 7,3 | II. 21. 30 | II. 27. 0. 1,7   | I. 9,9  | II. 29. 30 | II. 27. 56. 27,4 | I. 10,9 |
| II. 13. 40 | II. 26. 6. 9,4   | I. 7,4 | II. 21. 40 | II. 27. 1. 11,6  | I. 10,0 | II. 29. 40 | II. 27. 57. 38,3 | I. 10,8 |
| II. 13. 50 | II. 26. 7. 16,8  | I. 7,5 | II. 21. 50 | II. 27. 2. 21,6  | I. 10,0 | II. 29. 50 | II. 27. 58. 49,1 | I. 10,9 |
| II. 14. 0  | II. 26. 8. 24,3  |        | II. 22. 0  | II. 27. 3. 31,6  |         | II. 0. 0   | II. 28. 0. 0,0   |         |



TABLE XXXIV.

Equation XXVI. Variation.

ARGUMENT XXVI = ( $\tau$  corrected by all the preceding Equations— $\odot$ ).

|    | O <sup>s</sup> . | For<br>10'<br>+ | I <sup>s</sup> . | For<br>10'<br>± | II <sub>s</sub> . | For<br>10'<br>— | III <sup>s</sup> . | For<br>10'<br>— | IV <sup>s</sup> . | For<br>10'<br>± | V <sup>s</sup> . | For<br>10'<br>+ |
|----|------------------|-----------------|------------------|-----------------|-------------------|-----------------|--------------------|-----------------|-------------------|-----------------|------------------|-----------------|
| 0  | 0.38. 0,0        | 12,22           | 1. 8. 3,3        | 5,70            | 1. 7. 2,7         | 6,66            | 0.35.54,6          | 12,37           | 0. 5.25,9         | 5,88            | 0. 6. 1,2        | 6,68            |
| 1  | 0.39.13,0        | 12,20           | 1. 8.37,5        | 5,30            | 1. 6.22,7         | 7,02            | 0.34.40,4          | 12,35           | 0. 4.50,6         | 5,50            | 0. 6.41,3        | 7,06            |
| 2  | 0.40.26,5        | 12,17           | 1. 9. 9,3        | 4,90            | 1. 5.40,6         | 7,37            | 0.33.26,3          | 12,32           | 0. 4.17,6         | 5,10            | 0. 7.23,7        | 7,42            |
| 3  | 0.41.39,5        | 12,13           | 1. 9.38,7        | 4,50            | 1. 4.56,4         | 7,71            | 0.32.12,4          | 12,26           | 0. 3.47,0         | 4,70            | 0. 8. 8,2        | 7,78            |
| 4  | 0.42.52,2        | 12,07           | 1.10. 5,7        | 4,09            | 1. 4.10,1         | 8,03            | 0.30.58,9          | 12,18           | 0. 3.18,8         | 4,30            | 0. 8.55,0        | 8,13            |
| 5  | 0.44. 4,6        | 11,98           | 1.10.30,4        | 3,68            | 1. 3.21,9         | 8,35            | 0.29.45,8          | 12,10           | 0. 2.53,0         | 3,89            | 0. 9.43,8        | 8,47            |
| 6  | 0.45.16,5        | 11,88           | 1.10.52,5        | 3,27            | 1. 2.31,8         | 8,66            | 0.28.33,1          | 12,00           | 0. 2.29,7         | 3,48            | 0.10.34,6        | 8,81            |
| 7  | 0.46.27,8        | 11,78           | 1.11.12,2        | 2,85            | 1. 1.39,7         | 8,97            | 0.27.21,1          | 11,90           | 0. 2. 8,8         | 3,05            | 0.11.27,5        | 9,13            |
| 8  | 0.47.38,5        | 11,66           | 1.11.29,3        | 2,43            | 1. 0.45,9         | 9,27            | 0.26. 9,7          | 11,78           | 0. 1.50,5         | 2,62            | 0.12.22,3        | 9,43            |
| 9  | 0.48.48,5        | 11,53           | 1.11.43,9        | 2,01            | 0.59.50,3         | 9,55            | 0.24.59,0          | 11,65           | 0. 1.34,8         | 2,20            | 0.13.18,9        | 9,73            |
| 10 | 0.49.57,6        | 11,38           | 1.11.56,0        | 1,58            | 0.58.53,1         | 9,82            | 0.23.49,1          | 11,50           | 0. 1.21,5         | 1,77            | 0.14.17,3        | 10,02           |
| 11 | 0.51. 5,9        | 11,20           | 1.12. 5,5        | 1,15            | 0.57.54,2         | 10,07           | 0.22.40,2          | 11,32           | 0. 1.10,8         | 1,33            | 0.15.17,4        | 10,28           |
| 12 | 0.52.13,1        | 11,02           | 1.12.12,4        | 0,72            | 0.56.53,8         | 10,30           | 0.21.32,2          | 11,13           | 0. 1. 2,8         | 0,90            | 0.16.19,1        | 10,54           |
| 13 | 0.53.19,2        | 10,82           | 1.12.16,7        | 0,30            | 0.55.52,0         | 10,53           | 0.20.25,4          | 10,92           | 0. 0.57,4         | 0,47            | 0.17.22,5        | 10,80           |
| 14 | 0.54.24,1        | 10,61           | 1.12.18,5        | 0,13            | 0.54.48,8         | 10,75           | 0.19.19,7          | 10,73           | 0. 0.54,6         | 0,05            | 0.18.27,3        | 11,05           |
| 15 | 0.55.27,9        | 10,40           | 1.12.17,7        | 0,57            | 0.53.44,3         | 10,96           | 0.18.15,2          | 10,52           | 0. 0.54,3         | 0,40            | 0.19.33,6        | 11,27           |
| 16 | 0.56.30,3        | 10,17           | 1.12.14,3        | 1,00            | 0.52.38,5         | 11,15           | 0.17.12,1          | 10,30           | 0. 0.56,7         | 0,85            | 0.20.41,2        | 11,47           |
| 17 | 0.57.31,3        | 9,92            | 1.12. 8,2        | 1,43            | 0.51.31,6         | 11,33           | 0.16.10,3          | 10,07           | 0. 1. 1,8         | 1,28            | 0.21.50,0        | 11,67           |
| 18 | 0.58.30,8        | 9,65            | 1.11.59,6        | 1,86            | 0.50.23,6         | 11,50           | 0.15.10,3          | 9,82            | 0. 1. 9,5         | 1,71            | 0.23. 0,0        | 11,87           |
| 19 | 0.59.28,7        | 9,38            | 1.11.48,4        | 2,28            | 0.49.14,6         | 11,65           | 0.14.11,3          | 9,53            | 0. 1.19,9         | 2,13            | 0.24.11,2        | 12,02           |
| 20 | 1. 0.24,9        | 9,10            | 1.11.34,8        | 2,71            | 0.48. 4,7         | 11,78           | 0.13.14,1          | 9,23            | 0. 1.32,7         | 2,57            | 0.25.23,3        | 12,17           |
| 21 | 1. 1.19,5        | 8,80            | 1.11.18,5        | 3,13            | 0.46.54,0         | 11,90           | 0.12.18,7          | 8,94            | 0. 1.48,2         | 3,01            | 0.26.36,3        | 12,32           |
| 22 | 1. 2.12,3        | 8,48            | 1.10.59,8        | 3,55            | 0.45.42,5         | 12,01           | 0.11.25,0          | 8,64            | 0. 2. 6,4         | 3,43            | 0.27.50,2        | 12,43           |
| 23 | 1. 3. 3,2        | 8,17            | 1.10.38,5        | 3,95            | 0.44.30,4         | 12,11           | 0.10.33,1          | 8,33            | 0. 2.27,0         | 3,86            | 0.29. 4,8        | 12,53           |
| 24 | 1. 3.52,3        | 7,85            | 1.10.14,8        | 4,35            | 0.43.17,7         | 12,19           | 0. 9.43,1          | 8,01            | 0. 2.50,3         | 4,28            | 0.30.20,0        | 12,63           |
| 25 | 1. 4.39,4        | 7,51            | 1. 9.48,7        | 4,76            | 0.42. 4,6         | 12,26           | 0. 8.55,0          | 7,67            | 0. 3.15,9         | 4,70            | 0.31.35,8        | 12,70           |
| 26 | 1. 5.24,5        | 7,16            | 1. 9.20,1        | 5,11            | 0.40.51,0         | 12,32           | 0. 8. 9,0          | 7,33            | 0. 3.44,1         | 5,11            | 0.32.52,1        | 12,77           |
| 27 | 1. 6. 7,4        | 6,80            | 1. 8.49,2        | 5,53            | 0.39.37,1         | 12,33           | 0. 7.25,0          | 6,98            | 0. 4.14,8         | 5,52            | 0.34. 8,7        | 12,82           |
| 28 | 1. 6.48,2        | 6,44            | 1. 8.16,0        | 5,91            | 0.38.23,1         | 12,38           | 0. 6.43,1          | 6,62            | 0. 4.47,9         | 5,92            | 0.35.25,7        | 12,85           |
| 29 | 1. 7.26,9        | 6,07            | 1. 7.40,4        | 6,28            | 0.37. 8,8         | 12,37           | 0. 6. 3,4          | 6,24            | 0. 5.23,4         | 6,30            | 0.36.42,8        | 12,87           |
| 30 | 1. 8. 3,3        |                 | 1. 7. 2,7        |                 | 0.35.54,6         |                 | 0. 5.25,9          |                 | 0. 6. 1,2         |                 | 0.38. 0,0        |                 |

The difference is here given for 10', not for 1°.



## Continuation of TABLE XXXIV.

Equation XXVI. Variation.

ARGUMENT XXVI = ( $\alpha$  corrected by all the preceding Equations -  $\odot$ ).

|    | VI <sup>s</sup> . | For<br>10'<br>+ | VII <sup>s</sup> . | For<br>10'<br>± | VIII <sup>s</sup> . | For<br>10'<br>- | IX <sup>s</sup> . | For<br>10'<br>- | X <sup>s</sup> . | For<br>10'<br>± | XI <sup>s</sup> . | For<br>10'<br>+ |
|----|-------------------|-----------------|--------------------|-----------------|---------------------|-----------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| 0  | 0.38. 0,0         | 12,87           | 1. 9.58,8          | 6,30            | 1.10.34,3           | 6,24            | 0.40. 5,4         | 12,37           | 0. 8.57,3        | 6,28            | 0. 7.56,7         | 6,07            |
| 1  | 0.39.17,2         | 12,85           | 1.10.36,6          | 5,92            | 1. 9.56,6           | 6,62            | 0.38.51,2         | 12,38           | 0. 8.19,6        | 5,91            | 0. 8.33,1         | 6,45            |
| 2  | 0.40.34,3         | 12,82           | 1.11.12,1          | 5,52            | 1. 9.16,9           | 6,98            | 0.37.36,9         | 12,33           | 0. 7.44,0        | 5,53            | 0. 9.11,8         | 6,80            |
| 3  | 0.41.51,3         | 12,77           | 1.11.45,2          | 5,11            | 1. 8.35,0           | 7,33            | 0.36.22,9         | 12,32           | 0. 7.10,8        | 5,15            | 0. 9.52,6         | 7,15            |
| 4  | 0.43. 7,9         | 12,72           | 1.12.15,9          | 4,70            | 1. 7.51,0           | 7,67            | 0.35. 9,0         | 12,26           | 0. 6.39,9        | 4,77            | 0.10.35,5         | 7,51            |
| 5  | 0.44.24,2         | 12,63           | 1.12.44,1          | 4,28            | 1. 7. 5,0           | 8,01            | 0.33.55,4         | 12,19           | 0. 6.11,3        | 4,35            | 0.11.20,6         | 7,85            |
| 6  | 0.45.40,0         | 12,53           | 1.13. 9,7          | 3,86            | 1. 6.16,9           | 8,33            | 0.32.42,3         | 12,11           | 0. 5.45,2        | 3,95            | 0.12. 7,7         | 8,17            |
| 7  | 0.46.55,2         | 12,43           | 1.13.33,0          | 3,43            | 1. 5.26,9           | 8,64            | 0.31.29,6         | 12,01           | 0. 5.21,5        | 3,55            | 0.12.56,8         | 8,48            |
| 8  | 0.48. 9,8         | 12,32           | 1.13.53,6          | 3,01            | 1. 4.35,0           | 8,94            | 0.30.17,5         | 11,90           | 0. 5. 0,2        | 3,12            | 0.13.47,7         | 8,80            |
| 9  | 0.49.23,7         | 12,17           | 1.14.11,8          | 2,57            | 1. 3.41,3           | 9,23            | 0.29. 6,0         | 11,78           | 0. 4.41,5        | 2,75            | 0.14.40,5         | 9,10            |
| 10 | 0.50.36,7         | 12,02           | 1.14.27,3          | 2,13            | 1. 2.45,9           | 9,53            | 0.27.55,3         | 11,65           | 0. 4.25,0        | 2,23            | 0.15.35,1         | 9,38            |
| 11 | 0.51.48,8         | 11,87           | 1.14.40,1          | 1,71            | 1. 1.48,7           | 9,82            | 0.26.45,4         | 11,50           | 0. 4.11,6        | 1,87            | 0.16.31,3         | 9,65            |
| 12 | 0.53. 0,0         | 11,67           | 1.14.50,5          | 1,28            | 1. 0.49,9           | 10,07           | 0.25.36,4         | 11,33           | 0. 4. 0,4        | 1,43            | 0.17.29,2         | 9,92            |
| 13 | 0.54.10,0         | 11,47           | 1.14.58,2          | 0,85            | 0.59.49,7           | 10,30           | 0.24.28,4         | 11,15           | 0. 3.51,8        | 1,00            | 0.18.28,7         | 10,17           |
| 14 | 0.55.18,8         | 11,27           | 1.15. 3,3          | 0,40            | 0.58.47,9           | 10,52           | 0.23.21,5         | 10,96           | 0. 3.45,7        | 0,57            | 0.19.29,7         | 10,40           |
| 15 | 0.56.26,4         | 11,05           | 1.15. 5,7          | 0,05            | 0.57.44,8           | 10,73           | 0.22.15,7         | 10,75           | 0. 3.42,3        | 0,13            | 0.20.32,1         | 10,61           |
| 16 | 0.57.32,7         | 10,80           | 1.15. 5,4          | 0,53            | 0.56.40,3           | 10,93           | 0.21.11,2         | 10,53           | 0. 3.41,5        | 0,30            | 0.21.35,9         | 10,82           |
| 17 | 0.58.37,5         | 10,54           | 1.15. 2,6          | 0,90            | 0.55.34,6           | 11,13           | 0.20. 8,0         | 10,30           | 0. 3.43,3        | 0,72            | 0.22.40,8         | 11,02           |
| 18 | 0.59.40,9         | 10,28           | 1.14.57,2          | 1,33            | 0.54.27,8           | 11,32           | 0.19. 6,2         | 10,07           | 0. 3.47,6        | 1,15            | 0.23.46,9         | 11,20           |
| 19 | 1. 0.42,6         | 10,02           | 1.14.49,2          | 1,77            | 0.53.19,8           | 11,50           | 0.18. 5,8         | 9,82            | 0. 3.54,5        | 1,58            | 0.24.54,1         | 11,38           |
| 20 | 1. 1.42,7         | 9,73            | 1.14.38,5          | 2,20            | 0.52.10,9           | 11,65           | 0.17. 6,9         | 9,55            | 0. 4. 4,0        | 2,02            | 0.26. 2,4         | 11,52           |
| 21 | 1. 2.41,1         | 9,43            | 1.14.25,1          | 2,60            | 0.51. 1,0           | 11,78           | 0.16. 9,7         | 9,27            | 0. 4.16,1        | 2,43            | 0.27.11,5         | 11,67           |
| 22 | 1. 3.37,7         | 9,13            | 1.14. 9,2          | 3,05            | 0.49.50,3           | 11,90           | 0.15.14,1         | 8,97            | 0. 4.30,7        | 2,85            | 0.28.21,5         | 11,78           |
| 23 | 1. 4.32,5         | 8,81            | 1.13.51,2          | 3,48            | 0.48.38,9           | 12,00           | 0.14.20,3         | 8,66            | 0. 4.47,8        | 3,28            | 0.29.32,2         | 11,88           |
| 24 | 1. 5.25,4         | 8,47            | 1.13.30,3          | 3,89            | 0.47.26,9           | 12,10           | 0.13.28,2         | 8,35            | 0. 5. 7,5        | 3,67            | 0.30.43,5         | 11,98           |
| 25 | 1. 6.16,2         | 8,13            | 1.13. 7,0          | 4,30            | 0.46.14,2           | 12,18           | 0.12.38,1         | 8,03            | 0. 5.29,6        | 4,09            | 0.31.55,4         | 12,07           |
| 26 | 1. 7. 5,0         | 7,78            | 1.12.41,2          | 4,70            | 0.45. 1,1           | 12,26           | 0.11.49,9         | 7,71            | 0. 5.54,3        | 4,50            | 0.33. 7,8         | 12,12           |
| 27 | 1. 7.51,8         | 7,42            | 1.12.13,0          | 5,10            | 0.43.47,6           | 12,32           | 0.11. 3,6         | 7,37            | 0. 6.21,3        | 4,90            | 0.34.20,5         | 12,17           |
| 28 | 1. 8.36,3         | 7,06            | 1.11.42,4          | 5,50            | 0.42.33,7           | 12,35           | 0.10.19,4         | 7,02            | 0. 6.50,7        | 5,30            | 0.35.33,5         | 12,20           |
| 29 | 1. 9.18,7         | 6,68            | 1.11. 9,4          | 5,88            | 0.41.19,6           | 12,37           | 0. 9.37,3         | 6,66            | 0. 7.22,5        | 5,70            | 0.36.46,7         | 12,22           |
| 30 | 1. 9.58,8         |                 | 1.10.34,3          |                 | 0.40. 5,4           |                 | 0. 8.57,3         |                 | 0. 7.56,7        |                 | 0.38. 0,0         |                 |

The Difference is here given for 10', not for 1°.



TABLE XXXV.

Equation XXVII.

ARGUMENT XXVII =  $2(\zeta'' + N') - A'$ .

|    | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
|----|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| 0  | 0. 35,6            | 0. 46,9           | 1. 17,8          | 2. 0,0            | 2. 42,2            | 3. 13,1             | 30 |
| 1  | 0. 35,6            | 0. 47,7           | 1. 19,1          | 2. 1,5            | 2. 43,5            | 3. 13,8             | 29 |
| 2  | 0. 35,7            | 0. 48,4           | 1. 20,4          | 2. 2,9            | 2. 44,7            | 3. 14,5             | 28 |
| 3  | 0. 35,7            | 0. 49,2           | 1. 21,7          | 2. 4,4            | 2. 46,0            | 3. 15,2             | 27 |
| 4  | 0. 35,8            | 0. 50,0           | 1. 23,0          | 2. 5,9            | 2. 47,2            | 3. 15,9             | 26 |
| 5  | 0. 35,9            | 0. 50,9           | 1. 24,3          | 2. 7,4            | 2. 48,4            | 3. 16,5             | 25 |
| 6  | 0. 36,1            | 0. 51,7           | 1. 25,7          | 2. 8,8            | 2. 49,6            | 3. 17,1             | 24 |
| 7  | 0. 36,2            | 0. 52,6           | 1. 27,0          | 2. 10,3           | 2. 50,8            | 3. 17,7             | 23 |
| 8  | 0. 36,4            | 0. 53,5           | 1. 28,4          | 2. 11,7           | 2. 52,0            | 3. 18,3             | 22 |
| 9  | 0. 36,6            | 0. 54,4           | 1. 29,8          | 2. 13,2           | 2. 53,1            | 3. 18,8             | 21 |
| 10 | 0. 36,9            | 0. 55,4           | 1. 31,1          | 2. 14,7           | 2. 54,2            | 3. 19,3             | 20 |
| 11 | 0. 37,2            | 0. 56,4           | 1. 32,5          | 2. 16,1           | 2. 55,4            | 3. 19,8             | 19 |
| 12 | 0. 37,5            | 0. 57,3           | 1. 33,9          | 2. 17,5           | 2. 56,5            | 3. 20,3             | 18 |
| 13 | 0. 37,8            | 0. 58,3           | 1. 35,3          | 2. 19,0           | 2. 57,6            | 3. 20,7             | 17 |
| 14 | 0. 38,1            | 0. 59,3           | 1. 36,7          | 2. 20,4           | 2. 58,6            | 3. 21,1             | 16 |
| 15 | 0. 38,5            | 1. 0,3            | 1. 38,2          | 2. 21,8           | 2. 59,7            | 3. 21,5             | 15 |
| 16 | 0. 38,9            | 1. 1,4            | 1. 39,6          | 2. 23,3           | 3. 0,7             | 3. 21,9             | 14 |
| 17 | 0. 39,3            | 1. 2,4            | 1. 41,0          | 2. 24,7           | 3. 1,7             | 3. 22,2             | 13 |
| 18 | 0. 39,7            | 1. 3,5            | 1. 42,5          | 2. 26,1           | 3. 2,7             | 3. 22,5             | 12 |
| 19 | 0. 40,2            | 1. 4,6            | 1. 43,9          | 2. 27,5           | 3. 3,6             | 3. 22,8             | 11 |
| 20 | 0. 40,7            | 1. 5,8            | 1. 45,3          | 2. 28,9           | 3. 4,6             | 3. 23,1             | 10 |
| 21 | 0. 41,2            | 1. 6,9            | 1. 46,8          | 2. 30,2           | 3. 5,6             | 3. 23,4             | 9  |
| 22 | 0. 41,7            | 1. 8,0            | 1. 48,3          | 2. 31,6           | 3. 6,5             | 3. 23,6             | 8  |
| 23 | 0. 42,3            | 1. 9,2            | 1. 49,7          | 2. 33,0           | 3. 7,4             | 3. 23,8             | 7  |
| 24 | 0. 42,9            | 1. 10,4           | 1. 51,2          | 2. 34,3           | 3. 8,3             | 3. 23,9             | 6  |
| 25 | 0. 43,5            | 1. 11,6           | 1. 52,6          | 2. 35,7           | 3. 9,1             | 3. 24,1             | 5  |
| 26 | 0. 44,1            | 1. 12,8           | 1. 54,1          | 2. 37,0           | 3. 10,0            | 3. 24,2             | 4  |
| 27 | 0. 44,8            | 1. 14,0           | 1. 55,6          | 2. 38,3           | 3. 10,8            | 3. 24,3             | 3  |
| 28 | 0. 45,5            | 1. 15,2           | 1. 57,1          | 2. 39,6           | 3. 11,6            | 3. 24,3             | 2  |
| 29 | 0. 46,2            | 1. 16,5           | 1. 58,5          | 2. 40,9           | 3. 12,3            | 3. 24,4             | 1  |
| 30 | 0. 46,9            | 1. 17,8           | 2. 0,0           | 2. 42,2           | 3. 13,1            | 3. 24,4             | 0  |
|    | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |

TABLE XXXVI.

Equation XXVIII.

ARGUMENT XXVIII =  $(\zeta'' + N')$ .

|    | Os. VI <sup>s</sup> .  | Is. VII <sup>s</sup> . | II <sup>s</sup> . VIII <sup>s</sup> . | III <sup>s</sup> . IX <sup>s</sup> . | IV <sup>s</sup> . X <sup>s</sup> . | V <sup>s</sup> . XI <sup>s</sup> . |
|----|------------------------|------------------------|---------------------------------------|--------------------------------------|------------------------------------|------------------------------------|
|    | II <sup>s</sup> . 29°. | II <sup>s</sup> . 29°. | II <sup>s</sup> . 29°.                | II <sup>s</sup> . 29°.               | II <sup>s</sup> . 29°.             | II <sup>s</sup> . 29°.             |
| 0  | 20. 0,0                | 14. 7,7                | 14. 7,7                               | 20. 0,0                              | 25. 52,3                           | 25. 52,3                           |
| 1  | 19. 45,8               | 14. 0,8                | 14. 15,0                              | 20. 14,2                             | 25. 59,2                           | 25. 45,0                           |
| 2  | 19. 31,6               | 13. 54,4               | 14. 22,7                              | 20. 28,4                             | 26. 5,6                            | 25. 37,3                           |
| 3  | 19. 17,5               | 13. 48,4               | 14. 30,9                              | 20. 42,5                             | 26. 11,6                           | 25. 29,2                           |
| 4  | 19. 3,5                | 13. 42,8               | 14. 39,4                              | 20. 56,6                             | 26. 17,2                           | 25. 20,6                           |
| 5  | 18. 49,4               | 13. 37,7               | 14. 48,4                              | 21. 10,6                             | 26. 22,3                           | 25. 11,6                           |
| 6  | 18. 35,4               | 13. 33,1               | 14. 57,7                              | 21. 24,6                             | 26. 26,9                           | 25. 2,3                            |
| 7  | 18. 21,6               | 13. 28,9               | 15. 7,4                               | 21. 38,4                             | 26. 31,1                           | 24. 52,6                           |
| 8  | 18. 7,9                | 13. 25,3               | 15. 17,4                              | 21. 52,1                             | 26. 34,7                           | 24. 42,6                           |
| 9  | 17. 54,3               | 13. 22,1               | 15. 27,8                              | 22. 5,7                              | 26. 37,9                           | 24. 32,2                           |
| 10 | 17. 40,9               | 13. 19,4               | 15. 38,5                              | 22. 19,1                             | 26. 40,6                           | 24. 21,5                           |
| 11 | 17. 27,6               | 13. 17,1               | 15. 49,5                              | 22. 32,4                             | 26. 42,9                           | 24. 10,5                           |
| 12 | 17. 14,5               | 13. 15,4               | 16. 0,9                               | 22. 45,5                             | 26. 44,6                           | 23. 59,1                           |
| 13 | 17. 1,7                | 13. 14,2               | 16. 12,5                              | 22. 58,4                             | 26. 45,8                           | 23. 47,5                           |
| 14 | 16. 49,0               | 13. 13,5               | 16. 24,4                              | 23. 11,0                             | 26. 46,5                           | 23. 35,6                           |
| 15 | 16. 36,6               | 13. 13,2               | 16. 36,6                              | 23. 23,4                             | 26. 46,8                           | 23. 23,4                           |
| 16 | 16. 24,4               | 13. 13,5               | 16. 49,0                              | 23. 35,6                             | 26. 46,5                           | 23. 11,0                           |
| 17 | 16. 12,5               | 13. 14,2               | 17. 1,7                               | 23. 47,5                             | 26. 45,8                           | 22. 58,3                           |
| 18 | 16. 0,9                | 13. 15,4               | 17. 14,5                              | 23. 59,1                             | 26. 44,6                           | 22. 45,4                           |
| 19 | 15. 49,5               | 13. 17,1               | 17. 27,6                              | 24. 10,5                             | 26. 42,9                           | 22. 32,4                           |
| 20 | 15. 38,5               | 13. 19,4               | 17. 40,9                              | 24. 21,5                             | 26. 40,6                           | 22. 19,1                           |
| 21 | 15. 27,8               | 13. 22,1               | 17. 54,3                              | 24. 32,2                             | 26. 37,9                           | 22. 5,7                            |
| 22 | 15. 17,4               | 13. 25,3               | 18. 7,9                               | 24. 42,6                             | 26. 34,7                           | 21. 52,1                           |
| 23 | 15. 7,4                | 13. 28,9               | 18. 21,6                              | 24. 52,6                             | 26. 31,1                           | 21. 38,4                           |
| 24 | 14. 57,7               | 13. 33,1               | 18. 35,4                              | 25. 2,3                              | 26. 26,9                           | 21. 24,6                           |
| 25 | 14. 48,4               | 13. 37,7               | 18. 49,4                              | 25. 11,6                             | 26. 22,3                           | 21. 10,6                           |
| 26 | 14. 39,4               | 13. 42,8               | 19. 3,4                               | 25. 20,6                             | 26. 17,2                           | 20. 56,6                           |
| 27 | 14. 30,9               | 13. 48,4               | 19. 17,5                              | 25. 29,1                             | 26. 11,6                           | 20. 42,5                           |
| 28 | 14. 22,7               | 13. 54,4               | 19. 31,6                              | 25. 37,2                             | 26. 5,6                            | 20. 28,4                           |
| 29 | 14. 15,0               | 14. 0,8                | 19. 45,8                              | 25. 45,0                             | 25. 59,2                           | 20. 14,2                           |
| 30 | 14. 7,7                | 14. 7,7                | 20. 0,0                               | 25. 52,3                             | 25. 52,3                           | 20. 0,0                            |



TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|           |          | Distance from<br>the Pole. | Diff.  |           |           | Distance from<br>the Pole. | Diff.   |
|-----------|----------|----------------------------|--------|-----------|-----------|----------------------------|---------|
| s         | o        |                            |        | s         | o         |                            |         |
| 3. 0. 0   | 3. 0. 0  | 84. 40. 54,1               | 0. 0,1 | 2. 22. 30 | 3. 7. 30  | 84. 43. 32,9               | 0. 7,1  |
| 2. 29. 50 | 3. 0. 10 | 84. 40. 54,2               | 0. 0,2 | 2. 22. 20 | 3. 7. 40  | 84. 43. 40,0               | 0. 7,3  |
| 2. 29. 40 | 3. 0. 20 | 84. 40. 54,4               | 0. 0,4 | 2. 22. 10 | 3. 7. 50  | 84. 43. 47,3               | 0. 7,4  |
| 2. 29. 30 | 3. 0. 30 | 84. 40. 54,8               | 0. 0,5 | 2. 22. 0  | 3. 8. 0   | 84. 43. 54,7               | 0. 7,6  |
| 2. 29. 20 | 3. 0. 40 | 84. 40. 55,3               | 0. 0,7 | 2. 21. 50 | 3. 8. 10  | 84. 44. 2,3                | 0. 7,8  |
| 2. 29. 10 | 3. 0. 50 | 84. 40. 56,0               | 0. 0,9 | 2. 21. 40 | 3. 8. 20  | 84. 44. 10,1               | 0. 7,9  |
| 2. 29. 0  | 3. 1. 0  | 84. 40. 56,9               | 0. 1,0 | 2. 21. 30 | 3. 8. 30  | 84. 44. 18,0               | 0. 8,1  |
| 2. 28. 50 | 3. 1. 10 | 84. 40. 57,9               | 0. 1,2 | 2. 21. 20 | 3. 8. 40  | 84. 44. 26,1               | 0. 8,2  |
| 2. 28. 40 | 3. 1. 20 | 84. 40. 59,1               | 0. 1,4 | 2. 21. 10 | 3. 8. 50  | 84. 44. 34,3               | 0. 8,4  |
| 2. 28. 30 | 3. 1. 30 | 84. 41. 0,5                | 0. 1,5 | 2. 21. 0  | 3. 9. 0   | 84. 44. 42,7               | 0. 8,5  |
| 2. 28. 20 | 3. 1. 40 | 84. 41. 2,0                | 0. 1,6 | 2. 20. 50 | 3. 9. 10  | 84. 44. 51,2               | 0. 8,7  |
| 2. 28. 10 | 3. 1. 50 | 84. 41. 3,6                | 0. 1,8 | 2. 20. 40 | 3. 9. 20  | 84. 44. 59,9               | 0. 8,9  |
| 2. 28. 0  | 3. 2. 0  | 84. 41. 5,4                | 0. 2,0 | 2. 20. 30 | 3. 9. 30  | 84. 45. 8,8                | 0. 9,0  |
| 2. 27. 50 | 3. 2. 10 | 84. 41. 7,4                | 0. 2,1 | 2. 20. 20 | 3. 9. 40  | 84. 45. 17,8               | 0. 9,1  |
| 2. 27. 40 | 3. 2. 20 | 84. 41. 9,5                | 0. 2,3 | 2. 20. 10 | 3. 9. 50  | 84. 45. 26,9               | 0. 9,3  |
| 2. 27. 30 | 3. 2. 30 | 84. 41. 11,8               | 0. 2,4 | 2. 20. 0  | 3. 10. 0  | 84. 45. 36,2               | 0. 9,5  |
| 2. 27. 20 | 3. 2. 40 | 84. 41. 14,2               | 0. 2,6 | 2. 19. 50 | 3. 10. 10 | 84. 45. 45,7               | 0. 9,6  |
| 2. 27. 10 | 3. 2. 50 | 84. 41. 16,8               | 0. 2,7 | 2. 19. 40 | 3. 10. 20 | 84. 45. 55,3               | 0. 9,7  |
| 2. 27. 0  | 3. 3. 0  | 84. 41. 19,5               | 0. 2,9 | 2. 19. 30 | 3. 10. 30 | 84. 46. 5,0                | 0. 9,9  |
| 2. 26. 50 | 3. 3. 10 | 84. 41. 22,4               | 0. 3,1 | 2. 19. 20 | 3. 10. 40 | 84. 46. 14,9               | 0. 10,1 |
| 2. 26. 40 | 3. 3. 20 | 84. 41. 25,5               | 0. 3,2 | 2. 19. 10 | 3. 10. 50 | 84. 46. 25,0               | 0. 10,2 |
| 2. 26. 30 | 3. 3. 30 | 84. 41. 28,7               | 0. 3,4 | 2. 19. 0  | 3. 11. 0  | 84. 46. 35,2               | 0. 10,4 |
| 2. 26. 20 | 3. 3. 40 | 84. 41. 32,1               | 0. 3,5 | 2. 18. 50 | 3. 11. 10 | 84. 46. 45,6               | 0. 10,5 |
| 2. 26. 10 | 3. 3. 50 | 84. 41. 35,6               | 0. 3,7 | 2. 18. 40 | 3. 11. 20 | 84. 46. 56,1               | 0. 10,7 |
| 2. 26. 0  | 3. 4. 0  | 84. 41. 39,3               | 0. 3,9 | 2. 18. 30 | 3. 11. 30 | 84. 47. 6,8                | 0. 10,9 |
| 2. 25. 50 | 3. 4. 10 | 84. 41. 43,2               | 0. 4,0 | 2. 18. 20 | 3. 11. 40 | 84. 47. 17,7               | 0. 11,0 |
| 2. 25. 40 | 3. 4. 20 | 84. 41. 47,2               | 0. 4,2 | 2. 18. 10 | 3. 11. 50 | 84. 47. 28,7               | 0. 11,1 |
| 2. 25. 30 | 3. 4. 30 | 84. 41. 51,4               | 0. 4,3 | 2. 18. 0  | 3. 12. 0  | 84. 47. 39,8               | 0. 11,3 |
| 2. 25. 20 | 3. 4. 40 | 84. 41. 55,7               | 0. 4,5 | 2. 17. 50 | 3. 12. 10 | 84. 47. 51,1               | 0. 11,4 |
| 2. 25. 10 | 3. 4. 50 | 84. 42. 0,2                | 0. 4,6 | 2. 17. 40 | 3. 12. 20 | 84. 48. 2,5                | 0. 11,6 |
| 2. 25. 0  | 3. 5. 0  | 84. 42. 4,8                | 0. 4,8 | 2. 17. 30 | 3. 12. 30 | 84. 48. 14,1               | 0. 11,8 |
| 2. 24. 50 | 3. 5. 10 | 84. 42. 9,6                | 0. 4,9 | 2. 17. 20 | 3. 12. 40 | 84. 48. 25,9               | 0. 11,9 |
| 2. 24. 40 | 3. 5. 20 | 84. 42. 14,5               | 0. 5,1 | 2. 17. 10 | 3. 12. 50 | 84. 48. 37,8               | 0. 12,1 |
| 2. 24. 30 | 3. 5. 30 | 84. 42. 19,6               | 0. 5,2 | 2. 17. 0  | 3. 13. 0  | 84. 48. 49,9               | 0. 12,2 |
| 2. 24. 20 | 3. 5. 40 | 84. 42. 24,8               | 0. 5,4 | 2. 16. 50 | 3. 13. 10 | 84. 49. 2,1                | 0. 12,4 |
| 2. 24. 10 | 3. 5. 50 | 84. 42. 30,2               | 0. 5,6 | 2. 16. 40 | 3. 13. 20 | 84. 49. 14,5               | 0. 12,5 |
| 2. 24. 0  | 3. 6. 0  | 84. 42. 35,8               | 0. 5,7 | 2. 16. 30 | 3. 13. 30 | 84. 49. 27,0               | 0. 12,7 |
| 2. 23. 50 | 3. 6. 10 | 84. 42. 41,5               | 0. 5,9 | 2. 16. 20 | 3. 13. 40 | 84. 49. 39,7               | 0. 12,8 |
| 2. 23. 40 | 3. 6. 20 | 84. 42. 47,4               | 0. 6,1 | 2. 16. 10 | 3. 13. 50 | 84. 49. 52,5               | 0. 13,0 |
| 2. 23. 30 | 3. 6. 30 | 84. 42. 53,5               | 0. 6,2 | 2. 16. 0  | 3. 14. 0  | 84. 50. 5,5                | 0. 13,2 |
| 2. 23. 20 | 3. 6. 40 | 84. 42. 59,7               | 0. 6,3 | 2. 15. 50 | 3. 14. 10 | 84. 50. 18,7               | 0. 13,3 |
| 2. 23. 10 | 3. 6. 50 | 84. 43. 6,0                | 0. 6,5 | 2. 15. 40 | 3. 14. 20 | 84. 50. 32,0               | 0. 13,4 |
| 2. 23. 0  | 3. 7. 0  | 84. 43. 12,5               | 0. 6,6 | 2. 15. 30 | 3. 14. 30 | 84. 50. 45,4               | 0. 13,6 |
| 2. 22. 50 | 3. 7. 10 | 84. 43. 19,1               | 0. 6,8 | 2. 15. 20 | 3. 14. 40 | 84. 50. 59,0               | 0. 13,8 |
| 2. 22. 40 | 3. 7. 20 | 84. 43. 25,9               | 0. 7,0 | 2. 15. 10 | 3. 14. 50 | 84. 51. 12,8               | 0. 13,9 |
| 2. 22. 30 | 3. 7. 30 | 84. 43. 32,9               |        | 2. 15. 0  | 3. 15. 0  | 84. 51. 26,7               |         |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|           |           | Distance from<br>the Pole. | Diff.   |          |           | Distance from<br>the Pole. | Diff.   |
|-----------|-----------|----------------------------|---------|----------|-----------|----------------------------|---------|
| s o ' "   | s o ' "   | o ' "                      | ' "     | s o ' "  | s o ' "   | o ' "                      | ' "     |
| 2. 15. 0  | 3. 15. 0  | 84. 51. 26,7               | o. 14,0 | 2. 7. 30 | 3. 22. 30 | 85. 4. 27,0                | o. 20,7 |
| 2. 14. 50 | 3. 15. 10 | 84. 51. 40,7               | o. 14,2 | 2. 7. 20 | 3. 22. 40 | 85. 4. 47,7                | o. 20,9 |
| 2. 14. 40 | 3. 15. 20 | 84. 51. 54,9               | o. 14,3 | 2. 7. 10 | 3. 22. 50 | 85. 5. 8,6                 | o. 21,0 |
| 2. 14. 30 | 3. 15. 30 | 84. 52. 9,2                | o. 14,5 | 2. 7. 0  | 3. 23. 0  | 85. 5. 20,6                | o. 21,1 |
| 2. 14. 20 | 3. 15. 40 | 84. 52. 23,7               | o. 14,7 | 2. 6. 50 | 3. 23. 10 | 85. 5. 50,7                | o. 21,3 |
| 2. 14. 10 | 3. 15. 50 | 84. 52. 38,4               | o. 14,8 | 2. 6. 40 | 3. 23. 20 | 85. 6. 12,0                | o. 21,5 |
| 2. 14. 0  | 3. 16. 0  | 84. 52. 53,2               | o. 15,0 | 2. 6. 30 | 3. 23. 30 | 85. 6. 33,5                | o. 21,6 |
| 2. 13. 50 | 3. 16. 10 | 84. 53. 8,2                | o. 15,1 | 2. 6. 20 | 3. 23. 40 | 85. 6. 55,1                | o. 21,7 |
| 2. 13. 40 | 3. 16. 20 | 84. 53. 23,3               | o. 15,2 | 2. 6. 10 | 3. 23. 50 | 85. 7. 16,8                | o. 21,9 |
| 2. 13. 30 | 3. 16. 30 | 84. 53. 38,5               | o. 15,4 | 2. 6. 0  | 3. 24. 0  | 85. 7. 38,7                | o. 22,0 |
| 2. 13. 20 | 3. 16. 40 | 84. 53. 53,9               | o. 15,6 | 2. 5. 50 | 3. 24. 10 | 85. 8. 0,7                 | o. 22,2 |
| 2. 13. 10 | 3. 16. 50 | 84. 54. 9,5                | o. 15,7 | 2. 5. 40 | 3. 24. 20 | 85. 8. 22,9                | o. 22,3 |
| 2. 13. 0  | 3. 17. 0  | 84. 54. 25,2               | o. 15,9 | 2. 5. 30 | 3. 24. 30 | 85. 8. 45,2                | o. 22,5 |
| 2. 12. 50 | 3. 17. 10 | 84. 54. 41,1               | o. 16,0 | 2. 5. 20 | 3. 24. 40 | 85. 9. 7,7                 | o. 22,6 |
| 2. 12. 40 | 3. 17. 20 | 84. 54. 57,1               | o. 16,2 | 2. 5. 10 | 3. 24. 50 | 85. 9. 30,3                | o. 22,8 |
| 2. 12. 30 | 3. 17. 30 | 84. 55. 13,3               | o. 16,3 | 2. 5. 0  | 3. 25. 0  | 85. 9. 53,1                | o. 22,9 |
| 2. 12. 20 | 3. 17. 40 | 84. 55. 29,6               | o. 16,5 | 2. 4. 50 | 3. 25. 10 | 85. 10. 16,0               | o. 23,0 |
| 2. 12. 10 | 3. 17. 50 | 84. 55. 46,1               | o. 16,6 | 2. 4. 40 | 3. 25. 20 | 85. 10. 39,0               | o. 23,2 |
| 2. 12. 0  | 3. 18. 0  | 84. 56. 2,7                | o. 16,7 | 2. 4. 30 | 3. 25. 30 | 85. 11. 2,2                | o. 23,3 |
| 2. 11. 50 | 3. 18. 10 | 84. 56. 19,4               | o. 16,9 | 2. 4. 20 | 3. 25. 40 | 85. 11. 25,5               | o. 23,4 |
| 2. 11. 40 | 3. 18. 20 | 84. 56. 36,3               | o. 17,1 | 2. 4. 10 | 3. 25. 50 | 85. 11. 48,9               | o. 23,6 |
| 2. 11. 30 | 3. 18. 30 | 84. 56. 53,4               | o. 17,2 | 2. 4. 0  | 3. 26. 0  | 85. 12. 12,5               | o. 23,7 |
| 2. 11. 20 | 3. 18. 40 | 84. 57. 10,6               | o. 17,3 | 2. 3. 50 | 3. 26. 10 | 85. 12. 36,2               | o. 23,9 |
| 2. 11. 10 | 3. 18. 50 | 84. 57. 27,9               | o. 17,5 | 2. 3. 40 | 3. 26. 20 | 85. 13. 0,1                | o. 24,0 |
| 2. 11. 0  | 3. 19. 0  | 84. 57. 45,4               | o. 17,6 | 2. 3. 30 | 3. 26. 30 | 85. 13. 24,1               | o. 24,2 |
| 2. 10. 50 | 3. 19. 10 | 84. 58. 3,0                | o. 17,8 | 2. 3. 20 | 3. 26. 40 | 85. 13. 48,3               | o. 24,3 |
| 2. 10. 40 | 3. 19. 20 | 84. 58. 20,8               | o. 18,0 | 2. 3. 10 | 3. 26. 50 | 85. 14. 12,5               | o. 24,4 |
| 2. 10. 30 | 3. 19. 30 | 84. 58. 38,8               | o. 18,1 | 2. 3. 0  | 3. 27. 0  | 85. 14. 37,0               | o. 24,6 |
| 2. 10. 20 | 3. 19. 40 | 84. 58. 56,9               | o. 18,2 | 2. 2. 50 | 3. 27. 10 | 85. 15. 1,6                | o. 24,7 |
| 2. 10. 10 | 3. 19. 50 | 84. 59. 15,1               | o. 18,4 | 2. 2. 40 | 3. 27. 20 | 85. 15. 26,3               | o. 24,8 |
| 2. 10. 0  | 3. 20. 0  | 84. 59. 33,5               | o. 18,5 | 2. 2. 30 | 3. 27. 30 | 85. 15. 51,1               | o. 25,0 |
| 2. 9. 50  | 3. 20. 10 | 84. 59. 52,0               | o. 18,7 | 2. 2. 20 | 3. 27. 40 | 85. 16. 16,1               | o. 25,1 |
| 2. 9. 40  | 3. 20. 20 | 85. 0. 10,7                | o. 18,8 | 2. 2. 10 | 3. 27. 50 | 85. 16. 41,2               | o. 25,3 |
| 2. 9. 30  | 3. 20. 30 | 85. 0. 29,5                | o. 19,0 | 2. 2. 0  | 3. 28. 0  | 85. 17. 6,5                | o. 25,4 |
| 2. 9. 20  | 3. 20. 40 | 85. 0. 48,5                | o. 19,1 | 2. 1. 50 | 3. 28. 10 | 85. 17. 31,9               | o. 25,6 |
| 2. 9. 10  | 3. 20. 50 | 85. 1. 7,6                 | o. 19,3 | 2. 1. 40 | 3. 28. 20 | 85. 17. 57,5               | o. 25,7 |
| 2. 9. 0   | 3. 21. 0  | 85. 1. 26,9                | o. 19,4 | 2. 1. 30 | 3. 28. 30 | 85. 18. 23,2               | o. 25,8 |
| 2. 8. 50  | 3. 21. 10 | 85. 1. 46,3                | o. 19,6 | 2. 1. 20 | 3. 28. 40 | 85. 18. 49,0               | o. 25,9 |
| 2. 8. 40  | 3. 21. 20 | 85. 2. 5,9                 | o. 19,7 | 2. 1. 10 | 3. 28. 50 | 85. 19. 14,9               | o. 26,1 |
| 2. 8. 30  | 3. 21. 30 | 85. 2. 25,6                | o. 19,8 | 2. 1. 0  | 3. 29. 0  | 85. 19. 41,0               | o. 26,2 |
| 2. 8. 20  | 3. 21. 40 | 85. 2. 45,4                | o. 20,0 | 2. 0. 50 | 3. 29. 10 | 85. 20. 7,2                | o. 26,4 |
| 2. 8. 10  | 3. 21. 50 | 85. 3. 5,4                 | o. 20,2 | 2. 0. 40 | 3. 29. 20 | 85. 20. 33,6               | o. 26,5 |
| 2. 8. 0   | 3. 22. 0  | 85. 3. 25,6                | o. 20,3 | 2. 0. 30 | 3. 29. 30 | 85. 21. 0,1                | o. 26,6 |
| 2. 7. 50  | 3. 22. 10 | 85. 3. 45,9                | o. 20,5 | 2. 0. 20 | 3. 29. 40 | 85. 21. 26,7               | o. 26,8 |
| 2. 7. 40  | 3. 22. 20 | 85. 4. 6,4                 | o. 20,6 | 2. 0. 10 | 3. 29. 50 | 85. 21. 53,5               | o. 26,9 |
| 2. 7. 30  | 3. 22. 30 | 85. 4. 27,0                |         | 2. 0. 0  | 4. 0. 0   | 85. 22. 20,4               |         |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|           |          | Distance from<br>the Pole. | Diff.   |           |           | Distance from<br>the Pole. | Diff.   |
|-----------|----------|----------------------------|---------|-----------|-----------|----------------------------|---------|
| s ° '     | s ° '    | ° ' "                      | ' "     | s ° '     | s ° '     | ° ' "                      | ' "     |
| 2. 0. 0   | 4. 0. 0  | 85. 22. 20,4               | 0. 27,0 | 1. 22. 30 | 4. 7. 30  | 85. 44. 48,2               | 0. 32,9 |
| 1. 29. 50 | 4. 0. 10 | 85. 22. 47,4               | 0. 27,2 | 1. 22. 20 | 4. 7. 40  | 85. 45. 21,1               | 0. 33,0 |
| 1. 29. 40 | 4. 0. 20 | 85. 23. 14,6               | 0. 27,3 | 1. 22. 10 | 4. 7. 50  | 85. 45. 54,1               | 0. 33,2 |
| 1. 29. 30 | 4. 0. 30 | 85. 23. 41,9               | 0. 27,5 | 1. 22. 0  | 4. 8. 0   | 85. 46. 27,3               | 0. 33,3 |
| 1. 29. 20 | 4. 0. 40 | 85. 24. 9,4                | 0. 27,6 | 1. 21. 50 | 4. 8. 10  | 85. 47. 0,6                | 0. 33,4 |
| 1. 29. 10 | 4. 0. 50 | 85. 24. 37,0               | 0. 27,7 | 1. 21. 40 | 4. 8. 20  | 85. 47. 34,0               | 0. 33,5 |
| 1. 29. 0  | 4. 1. 0  | 85. 25. 4,7                | 0. 27,8 | 1. 21. 30 | 4. 8. 30  | 85. 48. 7,5                | 0. 33,7 |
| 1. 28. 50 | 4. 1. 10 | 85. 25. 32,5               | 0. 28,0 | 1. 21. 20 | 4. 8. 40  | 85. 48. 41,2               | 0. 33,8 |
| 1. 28. 40 | 4. 1. 20 | 85. 26. 0,5                | 0. 28,1 | 1. 21. 10 | 4. 8. 50  | 85. 49. 15,0               | 0. 33,9 |
| 1. 28. 30 | 4. 1. 30 | 85. 26. 28,6               | 0. 28,3 | 1. 21. 0  | 4. 9. 0   | 85. 49. 48,9               | 0. 34,0 |
| 1. 28. 20 | 4. 1. 40 | 85. 26. 56,9               | 0. 28,4 | 1. 20. 50 | 4. 9. 10  | 85. 50. 22,9               | 0. 34,1 |
| 1. 28. 10 | 4. 1. 50 | 85. 27. 25,3               | 0. 28,5 | 1. 20. 40 | 4. 9. 20  | 85. 50. 57,0               | 0. 34,2 |
| 1. 28. 0  | 4. 2. 0  | 85. 27. 53,8               | 0. 28,6 | 1. 20. 30 | 4. 9. 30  | 85. 51. 31,2               | 0. 34,3 |
| 1. 27. 50 | 4. 2. 10 | 85. 28. 22,4               | 0. 28,8 | 1. 20. 20 | 4. 9. 40  | 85. 52. 5,5                | 0. 34,5 |
| 1. 27. 40 | 4. 2. 20 | 85. 28. 51,2               | 0. 28,9 | 1. 20. 10 | 4. 9. 50  | 85. 52. 40,0               | 0. 34,6 |
| 1. 27. 30 | 4. 2. 30 | 85. 29. 20,1               | 0. 29,1 | 1. 20. 0  | 4. 10. 0  | 85. 53. 14,6               | 0. 34,7 |
| 1. 27. 20 | 4. 2. 40 | 85. 29. 49,2               | 0. 29,2 | 1. 19. 50 | 4. 10. 10 | 85. 53. 49,3               | 0. 34,8 |
| 1. 27. 10 | 4. 2. 50 | 85. 30. 18,4               | 0. 29,3 | 1. 19. 40 | 4. 10. 20 | 85. 54. 24,1               | 0. 35,0 |
| 1. 27. 0  | 4. 3. 0  | 85. 30. 47,7               | 0. 29,5 | 1. 19. 30 | 4. 10. 30 | 85. 54. 59,1               | 0. 35,1 |
| 1. 26. 50 | 4. 3. 10 | 85. 31. 17,2               | 0. 29,6 | 1. 19. 20 | 4. 10. 40 | 85. 55. 34,2               | 0. 35,2 |
| 1. 26. 40 | 4. 3. 20 | 85. 31. 46,8               | 0. 29,7 | 1. 19. 10 | 4. 10. 50 | 85. 56. 9,4                | 0. 35,3 |
| 1. 26. 30 | 4. 3. 30 | 85. 32. 16,5               | 0. 29,8 | 1. 19. 0  | 4. 11. 0  | 85. 56. 44,7               | 0. 35,4 |
| 1. 26. 20 | 4. 3. 40 | 85. 32. 46,3               | 0. 30,0 | 1. 18. 50 | 4. 11. 10 | 85. 57. 20,1               | 0. 35,6 |
| 1. 26. 10 | 4. 3. 50 | 85. 33. 16,3               | 0. 30,1 | 1. 18. 40 | 4. 11. 20 | 85. 57. 55,7               | 0. 35,7 |
| 1. 26. 0  | 4. 4. 0  | 85. 33. 46,4               | 0. 30,2 | 1. 18. 30 | 4. 11. 30 | 85. 58. 31,4               | 0. 35,8 |
| 1. 25. 50 | 4. 4. 10 | 85. 34. 16,6               | 0. 30,4 | 1. 18. 20 | 4. 11. 40 | 85. 59. 7,2                | 0. 35,9 |
| 1. 25. 40 | 4. 4. 20 | 85. 34. 47,0               | 0. 30,5 | 1. 18. 10 | 4. 11. 50 | 85. 59. 43,1               | 0. 36,0 |
| 1. 25. 30 | 4. 4. 30 | 85. 35. 17,5               | 0. 30,6 | 1. 18. 0  | 4. 12. 0  | 86. 0. 19,1                | 0. 36,1 |
| 1. 25. 20 | 4. 4. 40 | 85. 35. 48,1               | 0. 30,8 | 1. 17. 50 | 4. 12. 10 | 86. 0. 55,2                | 0. 36,3 |
| 1. 25. 10 | 4. 4. 50 | 85. 36. 18,9               | 0. 30,9 | 1. 17. 40 | 4. 12. 20 | 86. 1. 31,5                | 0. 36,4 |
| 1. 25. 0  | 4. 5. 0  | 85. 36. 49,8               | 0. 31,0 | 1. 17. 30 | 4. 12. 30 | 86. 2. 7,9                 | 0. 36,5 |
| 1. 24. 50 | 4. 5. 10 | 85. 37. 20,8               | 0. 31,1 | 1. 17. 20 | 4. 12. 40 | 86. 2. 44,4                | 0. 36,6 |
| 1. 24. 40 | 4. 5. 20 | 85. 37. 51,9               | 0. 31,3 | 1. 17. 10 | 4. 12. 50 | 86. 3. 21,0                | 0. 36,7 |
| 1. 24. 30 | 4. 5. 30 | 85. 38. 23,2               | 0. 31,4 | 1. 17. 0  | 4. 13. 0  | 86. 3. 57,7                | 0. 36,8 |
| 1. 24. 20 | 4. 5. 40 | 85. 38. 54,6               | 0. 31,5 | 1. 16. 50 | 4. 13. 10 | 86. 4. 34,5                | 0. 36,9 |
| 1. 24. 10 | 4. 5. 50 | 85. 39. 26,1               | 0. 31,6 | 1. 16. 40 | 4. 13. 20 | 86. 5. 11,4                | 0. 37,1 |
| 1. 24. 0  | 4. 6. 0  | 85. 39. 57,7               | 0. 31,8 | 1. 16. 30 | 4. 13. 30 | 86. 5. 48,5                | 0. 37,2 |
| 1. 23. 50 | 4. 6. 10 | 85. 40. 29,5               | 0. 31,9 | 1. 16. 20 | 4. 13. 40 | 86. 6. 25,7                | 0. 37,3 |
| 1. 23. 40 | 4. 6. 20 | 85. 41. 1,4                | 0. 32,0 | 1. 16. 10 | 4. 13. 50 | 86. 7. 3,0                 | 0. 37,4 |
| 1. 23. 30 | 4. 6. 30 | 85. 41. 33,4               | 0. 32,1 | 1. 16. 0  | 4. 14. 0  | 86. 7. 40,4                | 0. 37,5 |
| 1. 23. 20 | 4. 6. 40 | 85. 42. 5,5                | 0. 32,3 | 1. 15. 50 | 4. 14. 10 | 86. 8. 17,9                | 0. 37,6 |
| 1. 23. 10 | 4. 6. 50 | 85. 42. 37,8               | 0. 32,4 | 1. 15. 40 | 4. 14. 20 | 86. 8. 55,5                | 0. 37,7 |
| 1. 23. 0  | 4. 7. 0  | 85. 43. 10,2               | 0. 32,5 | 1. 15. 30 | 4. 14. 30 | 86. 9. 33,2                | 0. 37,9 |
| 1. 22. 50 | 4. 7. 10 | 85. 43. 42,7               | 0. 32,7 | 1. 15. 20 | 4. 14. 40 | 86. 10. 11,1               | 0. 38,0 |
| 1. 22. 40 | 4. 7. 20 | 85. 44. 15,4               | 0. 32,8 | 1. 15. 10 | 4. 14. 50 | 86. 10. 49,1               | 0. 38,1 |
| 1. 22. 30 | 4. 7. 30 | 85. 44. 48,2               |         | 1. 15. 0  | 4. 15. 0  | 86. 11. 27,2               |         |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|           |           | Distance from<br>the Pole. | Diff.   |          |           | Distance from<br>the Pole. | Diff.   |
|-----------|-----------|----------------------------|---------|----------|-----------|----------------------------|---------|
| s         | o         |                            |         | s        | o         |                            |         |
| 1. 15. 0  | 4. 15. 0  | 86. 11. 27,2               | o. 38,2 | 1. 7. 30 | 4. 22. 30 | 86. 41. 49,8               | o. 42,8 |
| 1. 14. 50 | 4. 15. 10 | 86. 12. 5,4                | o. 38,3 | 1. 7. 20 | 4. 22. 40 | 86. 42. 32,6               | o. 42,9 |
| 1. 14. 40 | 4. 15. 20 | 86. 12. 43,7               | o. 38,4 | 1. 7. 10 | 4. 22. 50 | 86. 43. 15,5               | o. 43,0 |
| 1. 14. 30 | 4. 15. 30 | 86. 13. 22,1               | o. 38,5 | 1. 7. 0  | 4. 23. 0  | 86. 43. 58,5               | o. 43,1 |
| 1. 14. 20 | 4. 15. 40 | 86. 14. 0,6                | o. 38,6 | 1. 6. 50 | 4. 23. 10 | 86. 44. 41,6               | o. 43,2 |
| 1. 14. 10 | 4. 15. 50 | 86. 14. 39,2               | o. 38,7 | 1. 6. 40 | 4. 23. 20 | 86. 45. 24,8               | o. 43,3 |
| 1. 14. 0  | 4. 16. 0  | 86. 15. 17,9               | o. 38,8 | 1. 6. 30 | 4. 23. 30 | 86. 46. 8,1                | o. 43,4 |
| 1. 13. 50 | 4. 16. 10 | 86. 15. 56,7               | o. 38,9 | 1. 6. 20 | 4. 23. 40 | 86. 46. 51,5               | o. 43,5 |
| 1. 13. 40 | 4. 16. 20 | 86. 16. 35,6               | o. 39,1 | 1. 6. 10 | 4. 23. 50 | 86. 47. 35,0               | o. 43,5 |
| 1. 13. 30 | 4. 16. 30 | 86. 17. 14,7               | o. 39,2 | 1. 6. 0  | 4. 24. 0  | 86. 48. 18,5               | o. 43,6 |
| 1. 13. 20 | 4. 16. 40 | 86. 17. 53,9               | o. 39,3 | 1. 5. 50 | 4. 24. 10 | 86. 49. 2,1                | o. 43,7 |
| 1. 13. 10 | 4. 16. 50 | 86. 18. 33,2               | o. 39,4 | 1. 5. 40 | 4. 24. 20 | 86. 49. 45,8               | o. 43,8 |
| 1. 13. 0  | 4. 17. 0  | 86. 19. 12,6               | o. 39,5 | 1. 5. 30 | 4. 24. 30 | 86. 50. 29,6               | o. 43,9 |
| 1. 12. 50 | 4. 17. 10 | 86. 19. 52,1               | o. 39,6 | 1. 5. 20 | 4. 24. 40 | 86. 51. 13,5               | o. 44,0 |
| 1. 12. 40 | 4. 17. 20 | 86. 20. 31,7               | o. 39,7 | 1. 5. 10 | 4. 24. 50 | 86. 51. 57,5               | o. 44,1 |
| 1. 12. 30 | 4. 17. 30 | 86. 21. 11,4               | o. 39,8 | 1. 5. 0  | 4. 25. 0  | 86. 52. 41,6               | o. 44,2 |
| 1. 12. 20 | 4. 17. 40 | 86. 21. 51,2               | o. 39,9 | 1. 4. 50 | 4. 25. 10 | 86. 53. 25,8               | o. 44,3 |
| 1. 12. 10 | 4. 17. 50 | 86. 22. 31,1               | o. 40,0 | 1. 4. 40 | 4. 25. 20 | 86. 54. 10,1               | o. 44,4 |
| 1. 12. 0  | 4. 18. 0  | 86. 23. 11,1               | o. 40,1 | 1. 4. 30 | 4. 25. 30 | 86. 54. 54,5               | o. 44,5 |
| 1. 11. 50 | 4. 18. 10 | 86. 23. 51,2               | o. 40,2 | 1. 4. 20 | 4. 25. 40 | 86. 55. 39,0               | o. 44,5 |
| 1. 11. 40 | 4. 18. 20 | 86. 24. 31,4               | o. 40,3 | 1. 4. 10 | 4. 25. 50 | 86. 56. 23,5               | o. 44,6 |
| 1. 11. 30 | 4. 18. 30 | 86. 25. 11,7               | o. 40,4 | 1. 4. 0  | 4. 26. 0  | 86. 57. 8,1                | o. 44,7 |
| 1. 11. 20 | 4. 18. 40 | 86. 25. 52,1               | o. 40,6 | 1. 3. 50 | 4. 26. 10 | 86. 57. 52,8               | o. 44,8 |
| 1. 11. 10 | 4. 18. 50 | 86. 26. 32,7               | o. 40,7 | 1. 3. 40 | 4. 26. 20 | 86. 58. 37,6               | o. 44,9 |
| 1. 11. 0  | 4. 19. 0  | 86. 27. 13,4               | o. 40,8 | 1. 3. 30 | 4. 26. 30 | 86. 59. 22,5               | o. 45,0 |
| 1. 10. 50 | 4. 19. 10 | 86. 27. 54,2               | o. 40,9 | 1. 3. 20 | 4. 26. 40 | 87. 0. 7,5                 | o. 45,0 |
| 1. 10. 40 | 4. 19. 20 | 86. 28. 35,1               | o. 41,0 | 1. 3. 10 | 4. 26. 50 | 87. 0. 52,5                | o. 45,1 |
| 1. 10. 30 | 4. 19. 30 | 86. 29. 16,1               | o. 41,0 | 1. 3. 0  | 4. 27. 0  | 87. 1. 37,6                | o. 45,2 |
| 1. 10. 20 | 4. 19. 40 | 86. 29. 57,1               | o. 41,1 | 1. 2. 50 | 4. 27. 10 | 87. 2. 22,8                | o. 45,3 |
| 1. 10. 10 | 4. 19. 50 | 86. 30. 38,2               | o. 41,2 | 1. 2. 40 | 4. 27. 20 | 87. 3. 8,1                 | o. 45,4 |
| 1. 10. 0  | 4. 20. 0  | 86. 31. 19,4               | o. 41,3 | 1. 2. 30 | 4. 27. 30 | 87. 3. 53,5                | o. 45,5 |
| 1. 9. 50  | 4. 20. 10 | 86. 32. 0,7                | o. 41,4 | 1. 2. 20 | 4. 27. 40 | 87. 4. 39,0                | o. 45,6 |
| 1. 9. 40  | 4. 20. 20 | 86. 32. 42,1               | o. 41,5 | 1. 2. 10 | 4. 27. 50 | 87. 5. 24,6                | o. 45,7 |
| 1. 9. 30  | 4. 20. 30 | 86. 33. 23,6               | o. 41,6 | 1. 2. 0  | 4. 28. 0  | 87. 6. 10,3                | o. 45,7 |
| 1. 9. 20  | 4. 20. 40 | 86. 34. 5,2                | o. 41,7 | 1. 1. 50 | 4. 28. 10 | 87. 6. 56,0                | o. 45,8 |
| 1. 9. 10  | 4. 20. 50 | 86. 34. 46,9               | o. 41,8 | 1. 1. 40 | 4. 28. 20 | 87. 7. 41,8                | o. 45,9 |
| 1. 9. 0   | 4. 21. 0  | 86. 35. 28,7               | o. 41,9 | 1. 1. 30 | 4. 28. 30 | 87. 8. 27,7                | o. 46,0 |
| 1. 8. 50  | 4. 21. 10 | 86. 36. 10,6               | o. 42,0 | 1. 1. 20 | 4. 28. 40 | 87. 9. 13,7                | o. 46,1 |
| 1. 8. 40  | 4. 21. 20 | 86. 36. 52,6               | o. 42,2 | 1. 1. 10 | 4. 28. 50 | 87. 9. 59,8                | o. 46,1 |
| 1. 8. 30  | 4. 21. 30 | 86. 37. 34,8               | o. 42,3 | 1. 1. 0  | 4. 29. 0  | 87. 10. 45,9               | o. 46,2 |
| 1. 8. 20  | 4. 21. 40 | 86. 38. 17,1               | o. 42,4 | 1. 0. 50 | 4. 29. 10 | 87. 11. 32,1               | o. 46,3 |
| 1. 8. 10  | 4. 21. 50 | 86. 38. 59,5               | o. 42,5 | 1. 0. 40 | 4. 29. 20 | 87. 12. 18,4               | o. 46,4 |
| 1. 8. 0   | 4. 22. 0  | 86. 39. 42,0               | o. 42,5 | 1. 0. 30 | 4. 29. 30 | 87. 13. 4,8                | o. 46,5 |
| 1. 7. 50  | 4. 22. 10 | 86. 40. 24,5               | o. 42,6 | 1. 0. 20 | 4. 29. 40 | 87. 13. 51,3               | o. 46,6 |
| 1. 7. 40  | 4. 22. 20 | 86. 41. 7,1                | o. 42,7 | 1. 0. 10 | 4. 29. 50 | 87. 14. 37,9               | o. 46,7 |
| 1. 7. 30  | 4. 22. 30 | 86. 41. 49,8               |         | 1. 0. 0  | 5. 0. 0   | 87. 15. 24,6               |         |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|                         |                         | Distance from<br>the Pole.   | Diff.                |                           |                          | Distance from<br>the Pole.   | Diff.                |
|-------------------------|-------------------------|------------------------------|----------------------|---------------------------|--------------------------|------------------------------|----------------------|
| <sup>s</sup><br>1. 0. 0 | <sup>s</sup><br>5. 0. 0 | <sup>o</sup><br>87. 15. 24,6 | <sup>o</sup><br>46,7 | <sup>s</sup><br>0. 22. 30 | <sup>s</sup><br>5. 7. 30 | <sup>o</sup><br>87. 51. 36,9 | <sup>o</sup><br>49,8 |
| 0. 29. 50               | 5. 0. 10                | 87. 16. 11,3                 | 0. 46,7              | 0. 22. 20                 | 5. 7. 40                 | 87. 52. 26,7                 | 0. 49,8              |
| 0. 29. 40               | 5. 0. 20                | 87. 16. 58,0                 | 0. 46,8              | 0. 22. 10                 | 5. 7. 50                 | 87. 53. 16,5                 | 0. 49,9              |
| 0. 29. 30               | 5. 0. 30                | 87. 17. 44,8                 | 0. 46,9              | 0. 22. 0                  | 5. 8. 0                  | 87. 54. 6,4                  | 0. 50,0              |
| 0. 29. 20               | 5. 0. 40                | 87. 18. 31,7                 | 0. 47,0              | 0. 21. 50                 | 5. 8. 10                 | 87. 54. 56,4                 | 0. 50,0              |
| 0. 29. 10               | 5. 0. 50                | 87. 19. 18,7                 | 0. 47,1              | 0. 21. 40                 | 5. 8. 20                 | 87. 55. 46,4                 | 0. 50,1              |
| 0. 29. 0                | 5. 1. 0                 | 87. 20. 5,8                  | 0. 47,2              | 0. 21. 30                 | 5. 8. 30                 | 87. 56. 36,5                 | 0. 50,2              |
| 0. 28. 50               | 5. 1. 10                | 87. 20. 53,0                 | 0. 47,3              | 0. 21. 20                 | 5. 8. 40                 | 87. 57. 26,7                 | 0. 50,2              |
| 0. 28. 40               | 5. 1. 20                | 87. 21. 40,3                 | 0. 47,3              | 0. 21. 10                 | 5. 8. 50                 | 87. 58. 16,9                 | 0. 50,2              |
| 0. 28. 30               | 5. 1. 30                | 87. 22. 27,6                 | 0. 47,4              | 0. 21. 0                  | 5. 9. 0                  | 87. 59. 7,1                  | 0. 50,3              |
| 0. 28. 20               | 5. 1. 40                | 87. 23. 15,0                 | 0. 47,4              | 0. 20. 50                 | 5. 9. 10                 | 87. 59. 57,4                 | 0. 50,3              |
| 0. 28. 10               | 5. 1. 50                | 87. 24. 2,4                  | 0. 47,5              | 0. 20. 40                 | 5. 9. 20                 | 88. 0. 47,7                  | 0. 50,4              |
| 0. 28. 0                | 5. 2. 0                 | 87. 24. 49,9                 | 0. 47,6              | 0. 20. 30                 | 5. 9. 30                 | 88. 1. 38,1                  | 0. 50,5              |
| 0. 27. 50               | 5. 2. 10                | 87. 25. 37,5                 | 0. 47,7              | 0. 20. 20                 | 5. 9. 40                 | 88. 2. 28,6                  | 0. 50,5              |
| 0. 27. 40               | 5. 2. 20                | 87. 26. 25,2                 | 0. 47,7              | 0. 20. 10                 | 5. 9. 50                 | 88. 3. 19,1                  | 0. 50,6              |
| 0. 27. 30               | 5. 2. 30                | 87. 27. 12,9                 | 0. 47,8              | 0. 20. 0                  | 5. 10. 0                 | 88. 4. 9,7                   | 0. 50,6              |
| 0. 27. 20               | 5. 2. 40                | 87. 28. 0,7                  | 0. 47,9              | 0. 19. 50                 | 5. 10. 10                | 88. 5. 0,3                   | 0. 50,7              |
| 0. 27. 10               | 5. 2. 50                | 87. 28. 48,6                 | 0. 48,0              | 0. 19. 40                 | 5. 10. 20                | 88. 5. 51,0                  | 0. 50,8              |
| 0. 27. 0                | 5. 3. 0                 | 87. 29. 36,6                 | 0. 48,0              | 0. 19. 30                 | 5. 10. 30                | 88. 6. 41,8                  | 0. 50,8              |
| 0. 26. 50               | 5. 3. 10                | 87. 30. 24,6                 | 0. 48,1              | 0. 19. 20                 | 5. 10. 40                | 88. 7. 32,6                  | 0. 50,8              |
| 0. 26. 40               | 5. 3. 20                | 87. 31. 12,7                 | 0. 48,2              | 0. 19. 10                 | 5. 10. 50                | 88. 8. 23,4                  | 0. 50,9              |
| 0. 26. 30               | 5. 3. 30                | 87. 32. 0,9                  | 0. 48,2              | 0. 19. 0                  | 5. 11. 0                 | 88. 9. 14,3                  | 0. 50,9              |
| 0. 26. 20               | 5. 3. 40                | 87. 32. 49,1                 | 0. 48,3              | 0. 18. 50                 | 5. 11. 10                | 88. 10. 5,2                  | 0. 51,0              |
| 0. 26. 10               | 5. 3. 50                | 87. 33. 37,4                 | 0. 48,4              | 0. 18. 40                 | 5. 11. 20                | 88. 10. 56,2                 | 0. 51,1              |
| 0. 26. 0                | 5. 4. 0                 | 87. 34. 25,8                 | 0. 48,5              | 0. 18. 30                 | 5. 11. 30                | 88. 11. 47,3                 | 0. 51,1              |
| 0. 25. 50               | 5. 4. 10                | 87. 35. 14,3                 | 0. 48,5              | 0. 18. 20                 | 5. 11. 40                | 88. 12. 38,4                 | 0. 51,1              |
| 0. 25. 40               | 5. 4. 20                | 87. 36. 2,8                  | 0. 48,6              | 0. 18. 10                 | 5. 11. 50                | 88. 13. 29,5                 | 0. 51,2              |
| 0. 25. 30               | 5. 4. 30                | 87. 36. 51,4                 | 0. 48,6              | 0. 18. 0                  | 5. 12. 0                 | 88. 14. 20,7                 | 0. 51,2              |
| 0. 25. 20               | 5. 4. 40                | 87. 37. 40,0                 | 0. 48,7              | 0. 17. 50                 | 5. 12. 10                | 88. 15. 11,9                 | 0. 51,3              |
| 0. 25. 10               | 5. 4. 50                | 87. 38. 28,7                 | 0. 48,8              | 0. 17. 40                 | 5. 12. 20                | 88. 16. 3,2                  | 0. 51,3              |
| 0. 25. 0                | 5. 5. 0                 | 87. 39. 17,5                 | 0. 48,9              | 0. 17. 30                 | 5. 12. 30                | 88. 16. 54,5                 | 0. 51,4              |
| 0. 24. 50               | 5. 5. 10                | 87. 40. 6,4                  | 0. 48,9              | 0. 17. 20                 | 5. 12. 40                | 88. 17. 45,9                 | 0. 51,4              |
| 0. 24. 40               | 5. 5. 20                | 87. 40. 55,3                 | 0. 49,0              | 0. 17. 10                 | 5. 12. 50                | 88. 18. 37,3                 | 0. 51,5              |
| 0. 24. 30               | 5. 5. 30                | 87. 41. 44,3                 | 0. 49,0              | 0. 17. 0                  | 5. 13. 0                 | 88. 19. 28,8                 | 0. 51,5              |
| 0. 24. 20               | 5. 5. 40                | 87. 42. 33,3                 | 0. 49,1              | 0. 16. 50                 | 5. 13. 10                | 88. 20. 20,3                 | 0. 51,6              |
| 0. 24. 10               | 5. 5. 50                | 87. 43. 22,4                 | 0. 49,2              | 0. 16. 40                 | 5. 13. 20                | 88. 21. 11,9                 | 0. 51,6              |
| 0. 24. 0                | 5. 6. 0                 | 87. 44. 11,6                 | 0. 49,2              | 0. 16. 30                 | 5. 13. 30                | 88. 22. 3,5                  | 0. 51,7              |
| 0. 23. 50               | 5. 6. 10                | 87. 45. 0,8                  | 0. 49,3              | 0. 16. 20                 | 5. 13. 40                | 88. 22. 55,2                 | 0. 51,7              |
| 0. 23. 40               | 5. 6. 20                | 87. 45. 50,1                 | 0. 49,4              | 0. 16. 10                 | 5. 13. 50                | 88. 23. 46,9                 | 0. 51,7              |
| 0. 23. 30               | 5. 6. 30                | 87. 46. 39,5                 | 0. 49,4              | 0. 16. 0                  | 5. 14. 0                 | 88. 24. 38,6                 | 0. 51,8              |
| 0. 23. 20               | 5. 6. 40                | 87. 47. 28,9                 | 0. 49,5              | 0. 15. 50                 | 5. 14. 10                | 88. 25. 30,4                 | 0. 51,8              |
| 0. 23. 10               | 5. 6. 50                | 87. 48. 18,4                 | 0. 49,5              | 0. 15. 40                 | 5. 14. 20                | 88. 26. 22,2                 | 0. 51,9              |
| 0. 23. 0                | 5. 7. 0                 | 87. 49. 7,9                  | 0. 49,6              | 0. 15. 30                 | 5. 14. 30                | 88. 27. 14,1                 | 0. 51,9              |
| 0. 22. 50               | 5. 7. 10                | 87. 49. 57,5                 | 0. 49,7              | 0. 15. 20                 | 5. 14. 40                | 88. 28. 6,0                  | 0. 51,9              |
| 0. 22. 40               | 5. 7. 20                | 87. 50. 47,2                 | 0. 49,7              | 0. 15. 10                 | 5. 14. 50                | 88. 28. 57,9                 | 0. 52,0              |
| 0. 22. 30               | 5. 7. 30                | 87. 51. 36,9                 |                      | 0. 15. 0                  | 5. 15. 0                 | 88. 29. 49,9                 |                      |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|           |           | Distance from<br>the Pole. | Diff.   |          |           | Distance from<br>the Pole. | Diff.   |
|-----------|-----------|----------------------------|---------|----------|-----------|----------------------------|---------|
| s         | o         | '                          |         | s        | o         | '                          |         |
| o. 15. 0  | 5. 15. 0  | 88. 29. 49,9               | o. 52,0 | o. 7. 30 | 5. 22. 30 | 89. 9. 24,4                | o. 53,4 |
| o. 14. 50 | 5. 15. 10 | 88. 30. 41,9               | o. 52,1 | o. 7. 20 | 5. 22. 40 | 89. 10. 17,8               | o. 53,4 |
| o. 14. 40 | 5. 15. 20 | 88. 31. 34,0               | o. 52,1 | o. 7. 10 | 5. 22. 50 | 89. 11. 11,2               | o. 53,4 |
| o. 14. 30 | 5. 15. 30 | 88. 32. 26,1               | o. 52,2 | o. 7. 0  | 5. 23. 0  | 89. 12. 4,6                | o. 53,4 |
| o. 14. 20 | 5. 15. 40 | 88. 33. 18,3               | o. 52,2 | o. 6. 50 | 5. 23. 10 | 89. 12. 58,0               | o. 53,5 |
| o. 14. 10 | 5. 15. 50 | 88. 34. 10,5               | o. 52,2 | o. 6. 40 | 5. 23. 20 | 89. 13. 51,5               | o. 53,5 |
| o. 14. 0  | 5. 16. 0  | 88. 35. 2,7                | o. 52,3 | o. 6. 30 | 5. 23. 30 | 89. 14. 45,0               | o. 53,5 |
| o. 13. 50 | 5. 16. 10 | 88. 35. 55,0               | o. 52,3 | o. 6. 20 | 5. 23. 40 | 89. 15. 38,5               | o. 53,5 |
| o. 13. 40 | 5. 16. 20 | 88. 36. 47,3               | o. 52,3 | o. 6. 10 | 5. 23. 50 | 89. 16. 32,0               | o. 53,5 |
| o. 13. 30 | 5. 16. 30 | 88. 37. 39,6               | o. 52,4 | o. 6. 0  | 5. 24. 0  | 89. 17. 25,5               | o. 53,5 |
| o. 13. 20 | 5. 16. 40 | 88. 38. 32,0               | o. 52,4 | o. 5. 50 | 5. 24. 10 | 89. 18. 19,0               | o. 53,6 |
| o. 13. 10 | 5. 16. 50 | 88. 39. 24,4               | o. 52,4 | o. 5. 40 | 5. 24. 20 | 89. 19. 12,6               | o. 53,6 |
| o. 13. 0  | 5. 17. 0  | 88. 40. 16,8               | o. 52,5 | o. 5. 30 | 5. 24. 30 | 89. 20. 6,2                | o. 53,6 |
| o. 12. 50 | 5. 17. 10 | 88. 41. 9,3                | o. 52,5 | o. 5. 20 | 5. 24. 40 | 89. 20. 59,8               | o. 53,6 |
| o. 12. 40 | 5. 17. 20 | 88. 42. 1,8                | o. 52,5 | o. 5. 10 | 5. 24. 50 | 89. 21. 53,4               | o. 53,6 |
| o. 12. 30 | 5. 17. 30 | 88. 42. 54,3               | o. 52,6 | o. 5. 0  | 5. 25. 0  | 89. 22. 47,0               | o. 53,6 |
| o. 12. 20 | 5. 17. 40 | 88. 43. 46,9               | o. 52,6 | o. 4. 50 | 5. 25. 10 | 89. 23. 40,6               | o. 53,7 |
| o. 12. 10 | 5. 17. 50 | 88. 44. 39,5               | o. 52,7 | o. 4. 40 | 5. 25. 20 | 89. 24. 34,3               | o. 53,7 |
| o. 12. 0  | 5. 18. 0  | 88. 45. 32,2               | o. 52,7 | o. 4. 30 | 5. 25. 30 | 89. 25. 28,0               | o. 53,7 |
| o. 11. 50 | 5. 18. 10 | 88. 46. 24,9               | o. 52,7 | o. 4. 20 | 5. 25. 40 | 89. 26. 21,7               | o. 53,6 |
| o. 11. 40 | 5. 18. 20 | 88. 47. 17,6               | o. 52,8 | o. 4. 10 | 5. 25. 50 | 89. 27. 15,3               | o. 53,7 |
| o. 11. 30 | 5. 18. 30 | 88. 48. 10,4               | o. 52,8 | o. 4. 0  | 5. 26. 0  | 89. 28. 9,0                | o. 53,7 |
| o. 11. 20 | 5. 18. 40 | 88. 49. 3,2                | o. 52,8 | o. 3. 50 | 5. 26. 10 | 89. 29. 2,7                | o. 53,7 |
| o. 11. 10 | 5. 18. 50 | 88. 49. 56,0               | o. 52,8 | o. 3. 40 | 5. 26. 20 | 89. 29. 56,4               | o. 53,7 |
| o. 11. 0  | 5. 19. 0  | 88. 50. 48,8               | o. 52,9 | o. 3. 30 | 5. 26. 30 | 89. 30. 50,1               | o. 53,7 |
| o. 10. 50 | 5. 19. 10 | 88. 51. 41,7               | o. 52,9 | o. 3. 20 | 5. 26. 40 | 89. 31. 43,8               | o. 53,8 |
| o. 10. 40 | 5. 19. 20 | 88. 52. 34,6               | o. 52,9 | o. 3. 10 | 5. 26. 50 | 89. 32. 37,5               | o. 53,7 |
| o. 10. 30 | 5. 19. 30 | 88. 53. 27,5               | o. 52,9 | o. 3. 0  | 5. 27. 0  | 89. 33. 31,3               | o. 53,8 |
| o. 10. 20 | 5. 19. 40 | 88. 54. 20,4               | o. 53,0 | o. 2. 50 | 5. 27. 10 | 89. 34. 25,1               | o. 53,8 |
| o. 10. 10 | 5. 19. 50 | 88. 55. 13,4               | o. 53,0 | o. 2. 40 | 5. 27. 20 | 89. 35. 18,9               | o. 53,7 |
| o. 10. 0  | 5. 20. 0  | 88. 56. 6,4                | o. 53,0 | o. 2. 30 | 5. 27. 30 | 89. 36. 12,6               | o. 53,8 |
| o. 9. 50  | 5. 20. 10 | 88. 56. 59,4               | o. 53,1 | o. 2. 20 | 5. 27. 40 | 89. 37. 6,4                | o. 53,8 |
| o. 9. 40  | 5. 20. 20 | 88. 57. 52,5               | o. 53,1 | o. 2. 10 | 5. 27. 50 | 89. 38. 0,2                | o. 53,8 |
| o. 9. 30  | 5. 20. 30 | 88. 58. 45,6               | o. 53,1 | o. 2. 0  | 5. 28. 0  | 89. 38. 54,0               | o. 53,8 |
| o. 9. 20  | 5. 20. 40 | 88. 59. 38,7               | o. 53,1 | o. 1. 50 | 5. 28. 10 | 89. 39. 47,8               | o. 53,8 |
| o. 9. 10  | 5. 20. 50 | 89. 0. 31,8                | o. 53,2 | o. 1. 40 | 5. 28. 20 | 89. 40. 41,6               | o. 53,8 |
| o. 9. 0   | 5. 21. 0  | 89. 1. 25,0                | o. 53,2 | o. 1. 30 | 5. 28. 30 | 89. 41. 35,4               | o. 53,9 |
| o. 8. 50  | 5. 21. 10 | 89. 2. 18,2                | o. 53,2 | o. 1. 20 | 5. 28. 40 | 89. 42. 29,3               | o. 53,8 |
| o. 8. 40  | 5. 21. 20 | 89. 3. 11,4                | o. 53,2 | o. 1. 10 | 5. 28. 50 | 89. 43. 23,1               | o. 53,8 |
| o. 8. 30  | 5. 21. 30 | 89. 4. 4,6                 | o. 53,2 | o. 1. 0  | 5. 29. 0  | 89. 44. 16,9               | o. 53,8 |
| o. 8. 20  | 5. 21. 40 | 89. 4. 57,8                | o. 53,3 | o. 0. 50 | 5. 29. 10 | 89. 45. 10,7               | o. 53,9 |
| o. 8. 10  | 5. 21. 50 | 89. 5. 51,1                | o. 53,3 | o. 0. 40 | 5. 29. 20 | 89. 46. 4,6                | o. 53,8 |
| o. 8. 0   | 5. 22. 0  | 89. 6. 44,4                | o. 53,3 | o. 0. 30 | 5. 29. 30 | 89. 46. 58,4               | o. 53,8 |
| o. 7. 50  | 5. 22. 10 | 89. 7. 37,7                | o. 53,3 | o. 0. 20 | 5. 29. 40 | 89. 47. 52,2               | o. 53,9 |
| o. 7. 40  | 5. 22. 20 | 89. 8. 31,0                | o. 53,3 | o. 0. 10 | 5. 29. 50 | 89. 48. 46,1               | o. 53,9 |
| o. 7. 30  | 5. 22. 30 | 89. 9. 24,4                | o. 53,4 | o. 0. 0  | 6. 0. 0   | 89. 49. 39,9               | o. 53,8 |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|     |     | Distance from<br>the Pole. | Diff.        |    |      | Distance from<br>the Pole. | Diff.     |              |    |      |
|-----|-----|----------------------------|--------------|----|------|----------------------------|-----------|--------------|----|------|
| s   | o   | '                          |              | s  | o    | '                          |           |              |    |      |
| 12. | 0.  | 0                          | 89. 49. 39,9 | o. | 53,8 | 11. 22. 30                 | 6. 7. 30  | 90. 29. 55,4 | o. | 53,4 |
| 11. | 29. | 50                         | 89. 50. 33,7 | o. | 53,9 | 11. 22. 20                 | 6. 7. 40  | 90. 30. 48,8 | o. | 53,3 |
| 11. | 29. | 40                         | 89. 51. 27,6 | o. | 53,8 | 11. 22. 10                 | 6. 7. 50  | 90. 31. 42,1 | o. | 53,3 |
| 11. | 29. | 30                         | 89. 52. 21,4 | o. | 53,8 | 11. 22. 0                  | 6. 8. 0   | 90. 32. 35,4 | o. | 53,3 |
| 11. | 29. | 20                         | 89. 53. 15,2 | o. | 53,9 | 11. 21. 50                 | 6. 8. 10  | 90. 33. 28,7 | o. | 53,3 |
| 11. | 29. | 10                         | 89. 54. 9,1  | o. | 53,8 | 11. 21. 40                 | 6. 8. 20  | 90. 34. 22,0 | o. | 53,2 |
| 11. | 29. | 0                          | 89. 55. 2,9  | o. | 53,8 | 11. 21. 30                 | 6. 8. 30  | 90. 35. 15,2 | o. | 53,2 |
| 11. | 28. | 50                         | 89. 55. 56,7 | o. | 53,9 | 11. 21. 20                 | 6. 8. 40  | 90. 36. 8,4  | o. | 53,2 |
| 11. | 28. | 40                         | 89. 56. 50,6 | o. | 53,8 | 11. 21. 10                 | 6. 8. 50  | 90. 37. 1,6  | o. | 53,2 |
| 11. | 28. | 30                         | 89. 57. 44,4 | o. | 53,8 | 11. 21. 0                  | 6. 9. 0   | 90. 37. 54,8 | o. | 53,2 |
| 11. | 28. | 20                         | 89. 58. 38,2 | o. | 53,8 | 11. 20. 50                 | 6. 9. 10  | 90. 38. 48,0 | o. | 53,1 |
| 11. | 28. | 10                         | 89. 59. 32,0 | o. | 53,8 | 11. 20. 40                 | 6. 9. 20  | 90. 39. 41,1 | o. | 53,1 |
| 11. | 28. | 0                          | 90. 0. 25,8  | o. | 53,8 | 11. 20. 30                 | 6. 9. 30  | 90. 40. 34,2 | o. | 53,1 |
| 11. | 27. | 50                         | 90. 1. 19,6  | o. | 53,8 | 11. 20. 20                 | 6. 9. 40  | 90. 41. 27,3 | o. | 53,1 |
| 11. | 27. | 40                         | 90. 2. 13,4  | o. | 53,8 | 11. 20. 10                 | 6. 9. 50  | 90. 42. 20,4 | o. | 53,0 |
| 11. | 27. | 30                         | 90. 3. 7,2   | o. | 53,8 | 11. 20. 0                  | 6. 10. 0  | 90. 43. 13,4 | o. | 53,0 |
| 11. | 27. | 20                         | 90. 4. 1,0   | o. | 53,8 | 11. 19. 50                 | 6. 10. 10 | 90. 44. 6,4  | o. | 53,0 |
| 11. | 27. | 10                         | 90. 4. 54,8  | o. | 53,7 | 11. 19. 40                 | 6. 10. 20 | 90. 44. 59,4 | o. | 52,9 |
| 11. | 27. | 0                          | 90. 5. 48,5  | o. | 53,7 | 11. 19. 30                 | 6. 10. 30 | 90. 45. 52,3 | o. | 52,9 |
| 11. | 26. | 50                         | 90. 6. 42,2  | o. | 53,8 | 11. 19. 20                 | 6. 10. 40 | 90. 46. 45,2 | o. | 52,9 |
| 11. | 26. | 40                         | 90. 7. 36,0  | o. | 53,7 | 11. 19. 10                 | 6. 10. 50 | 90. 47. 38,1 | o. | 52,9 |
| 11. | 26. | 30                         | 90. 8. 29,7  | o. | 53,7 | 11. 19. 0                  | 6. 11. 0  | 90. 48. 31,0 | o. | 52,9 |
| 11. | 26. | 20                         | 90. 9. 23,4  | o. | 53,7 | 11. 18. 50                 | 6. 11. 10 | 90. 49. 23,9 | o. | 52,8 |
| 11. | 26. | 10                         | 90. 10. 17,1 | o. | 53,7 | 11. 18. 40                 | 6. 11. 20 | 90. 50. 16,7 | o. | 52,8 |
| 11. | 26. | 0                          | 90. 11. 10,8 | o. | 53,7 | 11. 18. 30                 | 6. 11. 30 | 90. 51. 9,5  | o. | 52,7 |
| 11. | 25. | 50                         | 90. 12. 4,5  | o. | 53,7 | 11. 18. 20                 | 6. 11. 40 | 90. 52. 2,2  | o. | 52,7 |
| 11. | 25. | 40                         | 90. 12. 58,2 | o. | 53,7 | 11. 18. 10                 | 6. 11. 50 | 90. 52. 54,9 | o. | 52,7 |
| 11. | 25. | 30                         | 90. 13. 51,9 | o. | 53,6 | 11. 18. 0                  | 6. 12. 0  | 90. 53. 47,6 | o. | 52,7 |
| 11. | 25. | 20                         | 90. 14. 45,5 | o. | 53,6 | 11. 17. 50                 | 6. 12. 10 | 90. 54. 40,3 | o. | 52,6 |
| 11. | 25. | 10                         | 90. 15. 39,1 | o. | 53,7 | 11. 17. 40                 | 6. 12. 20 | 90. 55. 32,9 | o. | 52,6 |
| 11. | 25. | 0                          | 90. 16. 32,8 | o. | 53,6 | 11. 17. 30                 | 6. 12. 30 | 90. 56. 25,5 | o. | 52,5 |
| 11. | 24. | 50                         | 90. 17. 26,4 | o. | 53,6 | 11. 17. 20                 | 6. 12. 40 | 90. 57. 18,0 | o. | 52,5 |
| 11. | 24. | 40                         | 90. 18. 20,0 | o. | 53,6 | 11. 17. 10                 | 6. 12. 50 | 90. 58. 10,5 | o. | 52,5 |
| 11. | 24. | 30                         | 90. 19. 13,6 | o. | 53,6 | 11. 17. 0                  | 6. 13. 0  | 90. 59. 3,0  | o. | 52,4 |
| 11. | 24. | 20                         | 90. 20. 7,2  | o. | 53,6 | 11. 16. 50                 | 6. 13. 10 | 90. 59. 55,4 | o. | 52,4 |
| 11. | 24. | 10                         | 90. 21. 0,8  | o. | 53,5 | 11. 16. 40                 | 6. 13. 20 | 91. 0. 47,8  | o. | 52,4 |
| 11. | 24. | 0                          | 90. 21. 54,3 | o. | 53,5 | 11. 16. 30                 | 6. 13. 30 | 91. 1. 40,2  | o. | 52,3 |
| 11. | 23. | 50                         | 90. 22. 47,8 | o. | 53,5 | 11. 16. 20                 | 6. 13. 40 | 91. 2. 32,5  | o. | 52,3 |
| 11. | 23. | 40                         | 90. 23. 41,3 | o. | 53,5 | 11. 16. 10                 | 6. 13. 50 | 91. 3. 24,8  | o. | 52,3 |
| 11. | 23. | 30                         | 90. 24. 34,8 | o. | 53,5 | 11. 16. 0                  | 6. 14. 0  | 91. 4. 17,1  | o. | 52,2 |
| 11. | 23. | 20                         | 90. 25. 28,3 | o. | 53,5 | 11. 15. 50                 | 6. 14. 10 | 91. 5. 9,3   | o. | 52,2 |
| 11. | 23. | 10                         | 90. 26. 21,8 | o. | 53,4 | 11. 15. 40                 | 6. 14. 20 | 91. 6. 1,5   | o. | 52,2 |
| 11. | 23. | 0                          | 90. 27. 15,2 | o. | 53,4 | 11. 15. 30                 | 6. 14. 30 | 91. 6. 53,7  | o. | 52,1 |
| 11. | 22. | 50                         | 90. 28. 8,6  | o. | 53,4 | 11. 15. 20                 | 6. 14. 40 | 91. 7. 45,8  | o. | 52,1 |
| 11. | 22. | 40                         | 90. 29. 2,0  | o. | 53,4 | 11. 15. 10                 | 6. 14. 50 | 91. 8. 37,9  | o. | 52,0 |
| 11. | 22. | 30                         | 90. 29. 55,4 | o. | 53,4 | 11. 15. 0                  | 6. 15. 0  | 91. 9. 29,9  | o. | 52,0 |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|     |     | Distance from<br>the Pole. |    | Diff. |    |     | Distance from<br>the Pole. |      | Diff. |      |
|-----|-----|----------------------------|----|-------|----|-----|----------------------------|------|-------|------|
| s   | o   | '                          | o  | '     | o  | '   | s                          | o    | '     |      |
| 11. | 15. | 0                          | 6. | 15.   | 0  | 91. | 9.                         | 29,9 | 0.    | 52,0 |
| 11. | 14. | 50                         | 6. | 15.   | 10 | 91. | 10.                        | 21,9 | 0.    | 51,9 |
| 11. | 14. | 40                         | 6. | 15.   | 20 | 91. | 11.                        | 13,8 | 0.    | 51,9 |
| 11. | 14. | 30                         | 6. | 15.   | 30 | 91. | 12.                        | 5,7  | 0.    | 51,9 |
| 11. | 14. | 20                         | 6. | 15.   | 40 | 91. | 12.                        | 57,6 | 0.    | 51,8 |
| 11. | 14. | 10                         | 6. | 15.   | 50 | 91. | 13.                        | 49,4 | 0.    | 51,8 |
| 11. | 14. | 0                          | 6. | 16.   | 0  | 91. | 14.                        | 41,2 | 0.    | 51,8 |
| 11. | 13. | 50                         | 6. | 16.   | 10 | 91. | 15.                        | 33,0 | 0.    | 51,7 |
| 11. | 13. | 40                         | 6. | 16.   | 20 | 91. | 16.                        | 24,7 | 0.    | 51,6 |
| 11. | 13. | 30                         | 6. | 16.   | 30 | 91. | 17.                        | 16,3 | 0.    | 51,6 |
| 11. | 13. | 20                         | 6. | 16.   | 40 | 91. | 18.                        | 7,9  | 0.    | 51,6 |
| 11. | 13. | 10                         | 6. | 16.   | 50 | 91. | 18.                        | 59,5 | 0.    | 51,5 |
| 11. | 13. | 0                          | 6. | 17.   | 0  | 91. | 19.                        | 51,0 | 0.    | 51,5 |
| 11. | 12. | 50                         | 6. | 17.   | 10 | 91. | 20.                        | 42,5 | 0.    | 51,4 |
| 11. | 12. | 40                         | 6. | 17.   | 20 | 91. | 21.                        | 33,9 | 0.    | 51,4 |
| 11. | 12. | 30                         | 6. | 17.   | 30 | 91. | 22.                        | 25,3 | 0.    | 51,3 |
| 11. | 12. | 20                         | 6. | 17.   | 40 | 91. | 23.                        | 16,6 | 0.    | 51,3 |
| 11. | 12. | 10                         | 6. | 17.   | 50 | 91. | 24.                        | 7,9  | 0.    | 51,2 |
| 11. | 12. | 0                          | 6. | 18.   | 0  | 91. | 24.                        | 59,1 | 0.    | 51,2 |
| 11. | 11. | 50                         | 6. | 18.   | 10 | 91. | 25.                        | 50,3 | 0.    | 51,1 |
| 11. | 11. | 40                         | 6. | 18.   | 20 | 91. | 26.                        | 41,4 | 0.    | 51,1 |
| 11. | 11. | 30                         | 6. | 18.   | 30 | 91. | 27.                        | 32,5 | 0.    | 51,1 |
| 11. | 11. | 20                         | 6. | 18.   | 40 | 91. | 28.                        | 23,6 | 0.    | 51,0 |
| 11. | 11. | 10                         | 6. | 18.   | 50 | 91. | 29.                        | 14,6 | 0.    | 50,9 |
| 11. | 11. | 0                          | 6. | 19.   | 0  | 91. | 30.                        | 5,5  | 0.    | 50,9 |
| 11. | 10. | 50                         | 6. | 19.   | 10 | 91. | 30.                        | 56,4 | 0.    | 50,9 |
| 11. | 10. | 40                         | 6. | 19.   | 20 | 91. | 31.                        | 47,3 | 0.    | 50,8 |
| 11. | 10. | 30                         | 6. | 19.   | 30 | 91. | 32.                        | 38,1 | 0.    | 50,7 |
| 11. | 10. | 20                         | 6. | 19.   | 40 | 91. | 33.                        | 28,8 | 0.    | 50,7 |
| 11. | 10. | 10                         | 6. | 19.   | 50 | 91. | 34.                        | 19,5 | 0.    | 50,6 |
| 11. | 10. | 0                          | 6. | 20.   | 0  | 91. | 35.                        | 10,1 | 0.    | 50,6 |
| 11. | 9.  | 50                         | 6. | 20.   | 10 | 91. | 36.                        | 0,7  | 0.    | 50,5 |
| 11. | 9.  | 40                         | 6. | 20.   | 20 | 91. | 36.                        | 51,2 | 0.    | 50,4 |
| 11. | 9.  | 30                         | 6. | 20.   | 30 | 91. | 37.                        | 41,6 | 0.    | 50,4 |
| 11. | 9.  | 20                         | 6. | 20.   | 40 | 91. | 38.                        | 32,0 | 0.    | 50,4 |
| 11. | 9.  | 10                         | 6. | 20.   | 50 | 91. | 39.                        | 22,4 | 0.    | 50,4 |
| 11. | 9.  | 0                          | 6. | 21.   | 0  | 91. | 40.                        | 12,7 | 0.    | 50,3 |
| 11. | 8.  | 50                         | 6. | 21.   | 10 | 91. | 41.                        | 3,0  | 0.    | 50,3 |
| 11. | 8.  | 40                         | 6. | 21.   | 20 | 91. | 41.                        | 53,2 | 0.    | 50,2 |
| 11. | 8.  | 30                         | 6. | 21.   | 30 | 91. | 42.                        | 43,3 | 0.    | 50,1 |
| 11. | 8.  | 20                         | 6. | 21.   | 40 | 91. | 43.                        | 33,4 | 0.    | 50,1 |
| 11. | 8.  | 10                         | 6. | 21.   | 50 | 91. | 44.                        | 23,4 | 0.    | 50,0 |
| 11. | 8.  | 0                          | 6. | 22.   | 0  | 91. | 45.                        | 13,4 | 0.    | 50,0 |
| 11. | 7.  | 50                         | 6. | 22.   | 10 | 91. | 46.                        | 3,3  | 0.    | 49,9 |
| 11. | 7.  | 40                         | 6. | 22.   | 20 | 91. | 46.                        | 53,1 | 0.    | 49,8 |
| 11. | 7.  | 30                         | 6. | 22.   | 30 | 91. | 47.                        | 42,9 | 0.    | 49,8 |
| 11. | 7.  | 30                         | 6. | 22.   | 30 | 91. | 47.                        | 42,9 | 0.    | 49,8 |
| 11. | 7.  | 20                         | 6. | 22.   | 40 | 91. | 48.                        | 32,6 | 0.    | 49,7 |
| 11. | 7.  | 10                         | 6. | 22.   | 50 | 91. | 49.                        | 22,3 | 0.    | 49,7 |
| 11. | 7.  | 0                          | 6. | 23.   | 0  | 91. | 49.                        | 22,3 | 0.    | 49,6 |
| 11. | 6.  | 50                         | 6. | 23.   | 10 | 91. | 50.                        | 11,9 | 0.    | 49,6 |
| 11. | 6.  | 40                         | 6. | 23.   | 20 | 91. | 51.                        | 1,4  | 0.    | 49,5 |
| 11. | 6.  | 30                         | 6. | 23.   | 30 | 91. | 51.                        | 50,9 | 0.    | 49,5 |
| 11. | 6.  | 20                         | 6. | 23.   | 40 | 91. | 52.                        | 40,3 | 0.    | 49,5 |
| 11. | 6.  | 10                         | 6. | 23.   | 50 | 91. | 53.                        | 29,7 | 0.    | 49,4 |
| 11. | 6.  | 0                          | 6. | 23.   | 0  | 91. | 54.                        | 19,0 | 0.    | 49,4 |
| 11. | 5.  | 50                         | 6. | 24.   | 0  | 91. | 55.                        | 8,2  | 0.    | 49,3 |
| 11. | 5.  | 40                         | 6. | 24.   | 10 | 91. | 55.                        | 57,4 | 0.    | 49,3 |
| 11. | 5.  | 30                         | 6. | 24.   | 20 | 91. | 56.                        | 46,5 | 0.    | 49,2 |
| 11. | 5.  | 20                         | 6. | 24.   | 30 | 91. | 57.                        | 35,6 | 0.    | 49,2 |
| 11. | 5.  | 10                         | 6. | 24.   | 40 | 91. | 58.                        | 24,6 | 0.    | 49,2 |
| 11. | 5.  | 0                          | 6. | 24.   | 50 | 91. | 59.                        | 13,5 | 0.    | 49,1 |
| 11. | 4.  | 50                         | 6. | 25.   | 0  | 92. | 0.                         | 2,3  | 0.    | 49,1 |
| 11. | 4.  | 40                         | 6. | 25.   | 10 | 92. | 0.                         | 51,1 | 0.    | 49,0 |
| 11. | 4.  | 30                         | 6. | 25.   | 20 | 92. | 1.                         | 39,8 | 0.    | 48,9 |
| 11. | 4.  | 20                         | 6. | 25.   | 30 | 92. | 2.                         | 28,5 | 0.    | 48,9 |
| 11. | 4.  | 10                         | 6. | 25.   | 40 | 92. | 3.                         | 17,1 | 0.    | 48,8 |
| 11. | 4.  | 0                          | 6. | 25.   | 50 | 92. | 4.                         | 5,6  | 0.    | 48,8 |
| 11. | 3.  | 50                         | 6. | 26.   | 0  | 92. | 4.                         | 54,0 | 0.    | 48,8 |
| 11. | 3.  | 40                         | 6. | 26.   | 10 | 92. | 5.                         | 42,4 | 0.    | 48,7 |
| 11. | 3.  | 30                         | 6. | 26.   | 20 | 92. | 6.                         | 30,7 | 0.    | 48,7 |
| 11. | 3.  | 20                         | 6. | 26.   | 30 | 92. | 7.                         | 18,9 | 0.    | 48,7 |
| 11. | 3.  | 10                         | 6. | 26.   | 40 | 92. | 8.                         | 7,1  | 0.    | 48,6 |
| 11. | 3.  | 0                          | 6. | 26.   | 50 | 92. | 8.                         | 55,2 | 0.    | 48,6 |
| 11. | 2.  | 50                         | 6. | 27.   | 0  | 92. | 9.                         | 43,2 | 0.    | 48,5 |
| 11. | 2.  | 40                         | 6. | 27.   | 10 | 92. | 10.                        | 31,2 | 0.    | 48,5 |
| 11. | 2.  | 30                         | 6. | 27.   | 20 | 92. | 11.                        | 19,1 | 0.    | 48,4 |
| 11. | 2.  | 20                         | 6. | 27.   | 30 | 92. | 12.                        | 6,9  | 0.    | 48,4 |
| 11. | 2.  | 10                         | 6. | 27.   | 40 | 92. | 12.                        | 54,6 | 0.    | 48,3 |
| 11. | 2.  | 0                          | 6. | 27.   | 50 | 92. | 13.                        | 42,3 | 0.    | 48,3 |
| 11. | 1.  | 50                         | 6. | 28.   | 0  | 92. | 14.                        | 29,9 | 0.    | 48,2 |
| 11. | 1.  | 40                         | 6. | 28.   | 10 | 92. | 15.                        | 17,4 | 0.    | 48,2 |
| 11. | 1.  | 30                         | 6. | 28.   | 20 | 92. | 16.                        | 4,9  | 0.    | 48,1 |
| 11. | 1.  | 20                         | 6. | 28.   | 30 | 92. | 16.                        | 52,3 | 0.    | 48,1 |
| 11. | 1.  | 10                         | 6. | 28.   | 40 | 92. | 17.                        | 39,6 | 0.    | 48,0 |
| 11. | 1.  | 0                          | 6. | 28.   | 50 | 92. | 18.                        | 26,8 | 0.    | 48,0 |
| 11. | 0.  | 50                         | 6. | 29.   | 0  | 92. | 19.                        | 14,0 | 0.    | 47,9 |
| 11. | 0.  | 40                         | 6. | 29.   | 10 | 92. | 20.                        | 1,1  | 0.    | 47,9 |
| 11. | 0.  | 30                         | 6. | 29.   | 20 | 92. | 20.                        | 48,1 | 0.    | 47,8 |
| 11. | 0.  | 20                         | 6. | 29.   | 30 | 92. | 21.                        | 35,0 | 0.    | 47,7 |
| 11. | 0.  | 10                         | 6. | 29.   | 40 | 92. | 22.                        | 21,8 | 0.    | 47,7 |
| 11. | 0.  | 0                          | 6. | 29.   | 50 | 92. | 23.                        | 8,6  | 0.    | 47,6 |
| 11. | 0.  | 0                          | 7. | 0.    | 0  | 92. | 23.                        | 55,3 | 0.    | 47,5 |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|            |          | Distance from<br>the Pole. | Diff.   |            |           | Distance from<br>the Pole. | Diff.   |
|------------|----------|----------------------------|---------|------------|-----------|----------------------------|---------|
| s          | o        | '                          |         | s          | o         | '                          |         |
| 11. 0. 0   | 7. 0. 0  | 92. 23. 55,3               | o. 46,6 | 10. 22. 30 | 7. 7. 30  | 92. 57. 30,0               | o. 42,7 |
| 10. 29. 50 | 7. 0. 10 | 92. 24. 41,9               | o. 46,6 | 10. 22. 20 | 7. 7. 40  | 92. 58. 12,7               | o. 42,6 |
| 10. 29. 40 | 7. 0. 20 | 92. 25. 28,5               | o. 46,5 | 10. 22. 10 | 7. 7. 50  | 92. 58. 55,3               | o. 42,6 |
| 10. 29. 30 | 7. 0. 30 | 92. 26. 15,0               | o. 46,4 | 10. 22. 0  | 7. 8. 0   | 92. 59. 37,9               | o. 42,4 |
| 10. 29. 20 | 7. 0. 40 | 92. 27. 1,4                | o. 46,3 | 10. 21. 50 | 7. 8. 10  | 93. 0. 20,3                | o. 42,3 |
| 10. 29. 10 | 7. 0. 50 | 92. 27. 47,7               | o. 46,2 | 10. 21. 40 | 7. 8. 20  | 93. 1. 2,6                 | o. 42,2 |
| 10. 29. 0  | 7. 1. 0  | 92. 28. 33,9               | o. 46,1 | 10. 21. 30 | 7. 8. 30  | 93. 1. 44,8                | o. 42,1 |
| 10. 28. 50 | 7. 1. 10 | 92. 29. 20,0               | o. 46,1 | 10. 21. 20 | 7. 8. 40  | 93. 2. 26,9                | o. 42,0 |
| 10. 28. 40 | 7. 1. 20 | 92. 30. 6,1                | o. 46,0 | 10. 21. 10 | 7. 8. 50  | 93. 3. 8,9                 | o. 42,0 |
| 10. 28. 30 | 7. 1. 30 | 92. 30. 52,1               | o. 45,9 | 10. 21. 0  | 7. 9. 0   | 93. 3. 50,9                | o. 41,9 |
| 10. 28. 20 | 7. 1. 40 | 92. 31. 38,0               | o. 45,8 | 10. 20. 50 | 7. 9. 10  | 93. 4. 32,8                | o. 41,8 |
| 10. 28. 10 | 7. 1. 50 | 92. 32. 23,8               | o. 45,7 | 10. 20. 40 | 7. 9. 20  | 93. 5. 14,6                | o. 41,7 |
| 10. 28. 0  | 7. 2. 0  | 92. 33. 9,5                | o. 45,7 | 10. 20. 30 | 7. 9. 30  | 93. 5. 56,3                | o. 41,6 |
| 10. 27. 50 | 7. 2. 10 | 92. 33. 55,2               | o. 45,6 | 10. 20. 20 | 7. 9. 40  | 93. 6. 37,9                | o. 41,5 |
| 10. 27. 40 | 7. 2. 20 | 92. 34. 40,8               | o. 45,5 | 10. 20. 10 | 7. 9. 50  | 93. 7. 19,4                | o. 41,4 |
| 10. 27. 30 | 7. 2. 30 | 92. 35. 26,3               | o. 45,4 | 10. 20. 0  | 7. 10. 0  | 93. 8. 0,8                 | o. 41,3 |
| 10. 27. 20 | 7. 2. 40 | 92. 36. 11,7               | o. 45,3 | 10. 19. 50 | 7. 10. 10 | 93. 8. 42,1                | o. 41,1 |
| 10. 27. 10 | 7. 2. 50 | 92. 36. 57,0               | o. 45,2 | 10. 19. 40 | 7. 10. 20 | 93. 9. 23,2                | o. 41,0 |
| 10. 27. 0  | 7. 3. 0  | 92. 37. 42,2               | o. 45,1 | 10. 19. 30 | 7. 10. 30 | 93. 10. 4,2                | o. 40,9 |
| 10. 26. 50 | 7. 3. 10 | 92. 38. 27,3               | o. 45,0 | 10. 19. 20 | 7. 10. 40 | 93. 10. 45,1               | o. 40,8 |
| 10. 26. 40 | 7. 3. 20 | 92. 39. 12,3               | o. 45,0 | 10. 19. 10 | 7. 10. 50 | 93. 11. 25,9               | o. 40,7 |
| 10. 26. 30 | 7. 3. 30 | 92. 39. 57,3               | o. 44,9 | 10. 19. 0  | 7. 11. 0  | 93. 12. 6,6                | o. 40,6 |
| 10. 26. 20 | 7. 3. 40 | 92. 40. 42,2               | o. 44,8 | 10. 18. 50 | 7. 11. 10 | 93. 12. 47,2               | o. 40,5 |
| 10. 26. 10 | 7. 3. 50 | 92. 41. 27,0               | o. 44,7 | 10. 18. 40 | 7. 11. 20 | 93. 13. 27,7               | o. 40,4 |
| 10. 26. 0  | 7. 4. 0  | 92. 42. 11,7               | o. 44,6 | 10. 18. 30 | 7. 11. 30 | 93. 14. 8,1                | o. 40,3 |
| 10. 25. 50 | 7. 4. 10 | 92. 42. 56,3               | o. 44,6 | 10. 18. 20 | 7. 11. 40 | 93. 14. 48,4               | o. 40,2 |
| 10. 25. 40 | 7. 4. 20 | 92. 43. 40,9               | o. 44,5 | 10. 18. 10 | 7. 11. 50 | 93. 15. 28,6               | o. 40,1 |
| 10. 25. 30 | 7. 4. 30 | 92. 44. 25,4               | o. 44,4 | 10. 18. 0  | 7. 12. 0  | 93. 16. 8,7                | o. 40,0 |
| 10. 25. 20 | 7. 4. 40 | 92. 45. 9,8                | o. 44,3 | 10. 17. 50 | 7. 12. 10 | 93. 16. 48,7               | o. 39,9 |
| 10. 25. 10 | 7. 4. 50 | 92. 45. 54,1               | o. 44,2 | 10. 17. 40 | 7. 12. 20 | 93. 17. 28,6               | o. 39,8 |
| 10. 25. 0  | 7. 5. 0  | 92. 46. 38,3               | o. 44,1 | 10. 17. 30 | 7. 12. 30 | 93. 18. 8,4                | o. 39,7 |
| 10. 24. 50 | 7. 5. 10 | 92. 47. 22,4               | o. 43,9 | 10. 17. 20 | 7. 12. 40 | 93. 18. 48,1               | o. 39,6 |
| 10. 24. 40 | 7. 5. 20 | 92. 48. 6,3                | o. 43,9 | 10. 17. 10 | 7. 12. 50 | 93. 19. 27,7               | o. 39,5 |
| 10. 24. 30 | 7. 5. 30 | 92. 48. 50,2               | o. 43,8 | 10. 17. 0  | 7. 13. 0  | 93. 20. 7,2                | o. 39,4 |
| 10. 24. 20 | 7. 5. 40 | 92. 49. 34,0               | o. 43,7 | 10. 16. 50 | 7. 13. 10 | 93. 20. 46,6               | o. 39,3 |
| 10. 24. 10 | 7. 5. 50 | 92. 50. 17,7               | o. 43,6 | 10. 16. 40 | 7. 13. 20 | 93. 21. 25,9               | o. 39,2 |
| 10. 24. 0  | 7. 6. 0  | 92. 51. 1,3                | o. 43,5 | 10. 16. 30 | 7. 13. 30 | 93. 22. 5,1                | o. 39,1 |
| 10. 23. 50 | 7. 6. 10 | 92. 51. 44,8               | o. 43,5 | 10. 16. 20 | 7. 13. 40 | 93. 22. 44,2               | o. 39,0 |
| 10. 23. 40 | 7. 6. 20 | 92. 52. 28,3               | o. 43,4 | 10. 16. 10 | 7. 13. 50 | 93. 23. 23,2               | o. 38,9 |
| 10. 23. 30 | 7. 6. 30 | 92. 53. 11,7               | o. 43,3 | 10. 16. 0  | 7. 14. 0  | 93. 24. 2,1                | o. 38,8 |
| 10. 23. 20 | 7. 6. 40 | 92. 53. 55,0               | o. 43,2 | 10. 15. 50 | 7. 14. 10 | 93. 24. 40,9               | o. 38,7 |
| 10. 23. 10 | 7. 6. 50 | 92. 54. 38,2               | o. 43,1 | 10. 15. 40 | 7. 14. 20 | 93. 25. 19,6               | o. 38,6 |
| 10. 23. 0  | 7. 7. 0  | 92. 55. 21,3               | o. 43,0 | 10. 15. 30 | 7. 14. 30 | 93. 25. 58,2               | o. 38,5 |
| 10. 22. 50 | 7. 7. 10 | 92. 56. 4,3                | o. 42,9 | 10. 15. 20 | 7. 14. 40 | 93. 26. 36,7               | o. 38,3 |
| 10. 22. 40 | 7. 7. 20 | 92. 56. 47,2               | o. 42,8 | 10. 15. 10 | 7. 14. 50 | 93. 27. 15,0               | o. 38,1 |
| 10. 22. 30 | 7. 7. 30 | 92. 57. 30,0               |         | 10. 15. 0  | 7. 15. 0  | 93. 27. 53,1               |         |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|     |     |    |    | Distance from<br>the Pole. | Diff. |     |     |      |    | Distance from<br>the Pole. | Diff. |    |    |    |     |    |     |     |      |    |      |
|-----|-----|----|----|----------------------------|-------|-----|-----|------|----|----------------------------|-------|----|----|----|-----|----|-----|-----|------|----|------|
| s   | o   | '  | s  | o                          | '     | o   | '   | o    | '  | o                          | '     |    |    |    |     |    |     |     |      |    |      |
| 10. | 15. | 0  | 7. | 15.                        | 0     | 93. | 27. | 53,1 | o. | 37,9                       | 10.   | 7. | 30 | 7. | 22. | 30 | 93. | 54. | 31,6 | o. | 32,8 |
| 10. | 14. | 50 | 7. | 15.                        | 10    | 93. | 28. | 31,0 | o. | 37,8                       | 10.   | 7. | 20 | 7. | 22. | 40 | 93. | 55. | 4,4  | o. | 32,7 |
| 10. | 14. | 40 | 7. | 15.                        | 20    | 93. | 29. | 8,8  | o. | 37,8                       | 10.   | 7. | 10 | 7. | 22. | 50 | 93. | 55. | 37,1 | o. | 32,5 |
| 10. | 14. | 30 | 7. | 15.                        | 30    | 93. | 29. | 46,6 | o. | 37,7                       | 10.   | 7. | 0  | 7. | 23. | 0  | 93. | 56. | 9,6  | o. | 32,4 |
| 10. | 14. | 20 | 7. | 15.                        | 40    | 93. | 30. | 24,3 | o. | 37,6                       | 10.   | 6. | 50 | 7. | 23. | 10 | 93. | 56. | 42,0 | o. | 32,3 |
| 10. | 14. | 10 | 7. | 15.                        | 50    | 93. | 31. | 1,9  | o. | 37,5                       | 10.   | 6. | 40 | 7. | 23. | 20 | 93. | 57. | 14,3 | o. | 32,2 |
| 10. | 14. | 0  | 7. | 16.                        | 0     | 93. | 31. | 39,4 | o. | 37,4                       | 10.   | 6. | 30 | 7. | 23. | 30 | 93. | 57. | 46,5 | o. | 32,0 |
| 10. | 13. | 50 | 7. | 16.                        | 10    | 93. | 32. | 16,8 | o. | 37,3                       | 10.   | 6. | 20 | 7. | 23. | 40 | 93. | 58. | 18,5 | o. | 31,9 |
| 10. | 13. | 40 | 7. | 16.                        | 20    | 93. | 32. | 54,1 | o. | 37,2                       | 10.   | 6. | 10 | 7. | 23. | 50 | 93. | 58. | 50,4 | o. | 31,7 |
| 10. | 13. | 30 | 7. | 16.                        | 30    | 93. | 33. | 31,3 | o. | 37,1                       | 10.   | 6. | 0  | 7. | 24. | 0  | 93. | 59. | 22,1 | o. | 31,6 |
| 10. | 13. | 20 | 7. | 16.                        | 40    | 93. | 34. | 8,4  | o. | 36,9                       | 10.   | 5. | 50 | 7. | 24. | 10 | 93. | 59. | 53,7 | o. | 31,5 |
| 10. | 13. | 10 | 7. | 16.                        | 50    | 93. | 34. | 45,3 | o. | 36,8                       | 10.   | 5. | 40 | 7. | 24. | 20 | 94. | 0.  | 25,2 | o. | 31,4 |
| 10. | 13. | 0  | 7. | 17.                        | 0     | 93. | 35. | 22,1 | o. | 36,7                       | 10.   | 5. | 30 | 7. | 24. | 30 | 94. | 0.  | 56,6 | o. | 31,3 |
| 10. | 12. | 50 | 7. | 17.                        | 10    | 93. | 35. | 58,8 | o. | 36,6                       | 10.   | 5. | 20 | 7. | 24. | 40 | 94. | 1.  | 27,9 | o. | 31,1 |
| 10. | 12. | 40 | 7. | 17.                        | 20    | 93. | 36. | 35,4 | o. | 36,5                       | 10.   | 5. | 10 | 7. | 24. | 50 | 94. | 1.  | 59,0 | o. | 31,0 |
| 10. | 12. | 30 | 7. | 17.                        | 30    | 93. | 37. | 11,9 | o. | 36,4                       | 10.   | 5. | 0  | 7. | 25. | 0  | 94. | 2.  | 30,0 | o. | 30,9 |
| 10. | 12. | 20 | 7. | 17.                        | 40    | 93. | 37. | 48,3 | o. | 36,3                       | 10.   | 4. | 50 | 7. | 25. | 10 | 94. | 3.  | 0,9  | o. | 30,8 |
| 10. | 12. | 10 | 7. | 17.                        | 50    | 93. | 38. | 24,6 | o. | 36,1                       | 10.   | 4. | 40 | 7. | 25. | 20 | 94. | 3.  | 31,7 | o. | 30,7 |
| 10. | 12. | 0  | 7. | 18.                        | 0     | 93. | 39. | 0,7  | o. | 36,0                       | 10.   | 4. | 30 | 7. | 25. | 30 | 94. | 4.  | 2,4  | o. | 30,5 |
| 10. | 11. | 50 | 7. | 18.                        | 10    | 93. | 39. | 36,7 | o. | 35,9                       | 10.   | 4. | 20 | 7. | 25. | 40 | 94. | 4.  | 32,9 | o. | 30,4 |
| 10. | 11. | 40 | 7. | 18.                        | 20    | 93. | 40. | 12,6 | o. | 35,8                       | 10.   | 4. | 10 | 7. | 25. | 50 | 94. | 5.  | 3,3  | o. | 30,3 |
| 10. | 11. | 30 | 7. | 18.                        | 30    | 93. | 40. | 48,4 | o. | 35,7                       | 10.   | 4. | 0  | 7. | 26. | 0  | 94. | 5.  | 33,6 | o. | 30,1 |
| 10. | 11. | 20 | 7. | 18.                        | 40    | 93. | 41. | 24,1 | o. | 35,6                       | 10.   | 3. | 50 | 7. | 26. | 10 | 94. | 6.  | 3,7  | o. | 30,0 |
| 10. | 11. | 10 | 7. | 18.                        | 50    | 93. | 41. | 59,7 | o. | 35,4                       | 10.   | 3. | 40 | 7. | 26. | 20 | 94. | 6.  | 33,7 | o. | 29,8 |
| 10. | 11. | 0  | 7. | 19.                        | 0     | 93. | 42. | 35,1 | o. | 35,3                       | 10.   | 3. | 30 | 7. | 26. | 30 | 94. | 7.  | 3,5  | o. | 29,7 |
| 10. | 10. | 50 | 7. | 19.                        | 10    | 93. | 43. | 10,4 | o. | 35,2                       | 10.   | 3. | 20 | 7. | 26. | 40 | 94. | 7.  | 33,2 | o. | 29,5 |
| 10. | 10. | 40 | 7. | 19.                        | 20    | 93. | 43. | 45,6 | o. | 35,1                       | 10.   | 3. | 10 | 7. | 26. | 50 | 94. | 8.  | 2,7  | o. | 29,4 |
| 10. | 10. | 30 | 7. | 19.                        | 30    | 93. | 44. | 20,7 | o. | 35,0                       | 10.   | 3. | 0  | 7. | 27. | 0  | 94. | 8.  | 32,1 | o. | 29,3 |
| 10. | 10. | 20 | 7. | 19.                        | 40    | 93. | 44. | 55,7 | o. | 34,8                       | 10.   | 2. | 50 | 7. | 27. | 10 | 94. | 9.  | 1,4  | o. | 29,2 |
| 10. | 10. | 10 | 7. | 19.                        | 50    | 93. | 45. | 30,5 | o. | 34,7                       | 10.   | 2. | 40 | 7. | 27. | 20 | 94. | 9.  | 30,5 | o. | 29,0 |
| 10. | 10. | 0  | 7. | 20.                        | 0     | 93. | 46. | 5,2  | o. | 34,6                       | 10.   | 2. | 30 | 7. | 27. | 30 | 94. | 9.  | 59,6 | o. | 28,9 |
| 10. | 9.  | 50 | 7. | 20.                        | 10    | 93. | 46. | 39,8 | o. | 34,5                       | 10.   | 2. | 20 | 7. | 27. | 40 | 94. | 10. | 28,5 | o. | 28,8 |
| 10. | 9.  | 40 | 7. | 20.                        | 20    | 93. | 47. | 14,3 | o. | 34,4                       | 10.   | 2. | 10 | 7. | 27. | 50 | 94. | 10. | 57,3 | o. | 28,7 |
| 10. | 9.  | 30 | 7. | 20.                        | 30    | 93. | 47. | 48,7 | o. | 34,3                       | 10.   | 2. | 0  | 7. | 28. | 0  | 94. | 11. | 26,0 | o. | 28,5 |
| 10. | 9.  | 20 | 7. | 20.                        | 40    | 93. | 48. | 23,0 | o. | 34,1                       | 10.   | 1. | 50 | 7. | 28. | 10 | 94. | 11. | 54,5 | o. | 28,4 |
| 10. | 9.  | 10 | 7. | 20.                        | 50    | 93. | 48. | 57,1 | o. | 34,0                       | 10.   | 1. | 40 | 7. | 28. | 20 | 94. | 12. | 22,9 | o. | 28,2 |
| 10. | 9.  | 0  | 7. | 21.                        | 0     | 93. | 49. | 31,1 | o. | 33,9                       | 10.   | 1. | 30 | 7. | 28. | 30 | 94. | 12. | 51,1 | o. | 28,1 |
| 10. | 8.  | 50 | 7. | 21.                        | 10    | 93. | 50. | 5,0  | o. | 33,7                       | 10.   | 1. | 20 | 7. | 28. | 40 | 94. | 13. | 19,2 | o. | 28,0 |
| 10. | 8.  | 40 | 7. | 21.                        | 20    | 93. | 50. | 38,7 | o. | 33,6                       | 10.   | 1. | 10 | 7. | 28. | 50 | 94. | 13. | 47,2 | o. | 27,9 |
| 10. | 8.  | 30 | 7. | 21.                        | 30    | 93. | 51. | 12,3 | o. | 33,5                       | 10.   | 1. | 0  | 7. | 29. | 0  | 94. | 14. | 15,1 | o. | 27,7 |
| 10. | 8.  | 20 | 7. | 21.                        | 40    | 93. | 51. | 45,8 | o. | 33,4                       | 10.   | 0. | 50 | 7. | 29. | 10 | 94. | 14. | 42,8 | o. | 27,6 |
| 10. | 8.  | 10 | 7. | 21.                        | 50    | 93. | 52. | 19,2 | o. | 33,3                       | 10.   | 0. | 40 | 7. | 29. | 20 | 94. | 15. | 10,4 | o. | 27,5 |
| 10. | 8.  | 0  | 7. | 22.                        | 0     | 93. | 52. | 52,5 | o. | 33,2                       | 10.   | 0. | 30 | 7. | 29. | 30 | 94. | 15. | 37,9 | o. | 27,3 |
| 10. | 7.  | 50 | 7. | 22.                        | 10    | 93. | 53. | 25,7 | o. | 33,0                       | 10.   | 0. | 20 | 7. | 29. | 40 | 94. | 16. | 5,2  | o. | 27,2 |
| 10. | 7.  | 40 | 7. | 22.                        | 20    | 93. | 53. | 58,7 | o. | 32,9                       | 10.   | 0. | 10 | 7. | 29. | 50 | 94. | 16. | 32,4 | o. | 27,0 |
| 10. | 7.  | 30 | 7. | 22.                        | 30    | 93. | 54. | 31,6 |    |                            | 10.   | 0. | 0  | 8. | 0.  | 0  | 94. | 16. | 59,4 |    |      |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|                          |                         | Distance from<br>the Pole.   | Diff.                |                           |                          | Distance from<br>the Pole.   | Diff.                |
|--------------------------|-------------------------|------------------------------|----------------------|---------------------------|--------------------------|------------------------------|----------------------|
| <sup>s</sup><br>10. 0. 0 | <sup>s</sup><br>8. 0. 0 | <sup>o</sup><br>94. 16. 59,4 | <sup>o</sup><br>26,9 | <sup>s</sup><br>9. 22. 30 | <sup>s</sup><br>8. 7. 30 | <sup>o</sup><br>94. 34. 52,9 | <sup>o</sup><br>20,6 |
| 9. 29. 50                | 8. 0. 10                | 94. 17. 26,3                 | 26,8                 | 9. 22. 20                 | 8. 7. 40                 | 94. 35. 13,5                 | 20,4                 |
| 9. 29. 40                | 8. 0. 20                | 94. 17. 53,1                 | 26,6                 | 9. 22. 10                 | 8. 7. 50                 | 94. 35. 33,9                 | 20,3                 |
| 9. 29. 30                | 8. 0. 30                | 94. 18. 19,7                 | 26,5                 | 9. 22. 0                  | 8. 8. 0                  | 94. 35. 54,2                 | 20,1                 |
| 9. 29. 20                | 8. 0. 40                | 94. 18. 46,2                 | 26,4                 | 9. 21. 50                 | 8. 8. 10                 | 94. 36. 14,3                 | 20,0                 |
| 9. 29. 10                | 8. 0. 50                | 94. 19. 12,6                 | 26,2                 | 9. 21. 40                 | 8. 8. 20                 | 94. 36. 34,3                 | 19,9                 |
| 9. 29. 0                 | 8. 1. 0                 | 94. 19. 38,8                 | 26,1                 | 9. 21. 30                 | 8. 8. 30                 | 94. 36. 54,2                 | 19,7                 |
| 9. 28. 50                | 8. 1. 10                | 94. 20. 4,9                  | 26,0                 | 9. 21. 20                 | 8. 8. 40                 | 94. 37. 13,9                 | 19,6                 |
| 9. 28. 40                | 8. 1. 20                | 94. 20. 30,9                 | 25,8                 | 9. 21. 10                 | 8. 8. 50                 | 94. 37. 33,5                 | 19,4                 |
| 9. 28. 30                | 8. 1. 30                | 94. 20. 56,7                 | 25,7                 | 9. 21. 0                  | 8. 9. 0                  | 94. 37. 52,9                 | 19,3                 |
| 9. 28. 20                | 8. 1. 40                | 94. 21. 22,4                 | 25,5                 | 9. 20. 50                 | 8. 9. 10                 | 94. 38. 12,2                 | 19,1                 |
| 9. 28. 10                | 8. 1. 50                | 94. 21. 47,9                 | 25,4                 | 9. 20. 40                 | 8. 9. 20                 | 94. 38. 31,3                 | 19,0                 |
| 9. 28. 0                 | 8. 2. 0                 | 94. 22. 13,3                 | 25,3                 | 9. 20. 30                 | 8. 9. 30                 | 94. 38. 50,3                 | 18,8                 |
| 9. 27. 50                | 8. 2. 10                | 94. 22. 38,6                 | 25,1                 | 9. 20. 20                 | 8. 9. 40                 | 94. 39. 9,1                  | 18,7                 |
| 9. 27. 40                | 8. 2. 20                | 94. 23. 3,7                  | 25,0                 | 9. 20. 10                 | 8. 9. 50                 | 94. 39. 27,8                 | 18,5                 |
| 9. 27. 30                | 8. 2. 30                | 94. 23. 28,7                 | 24,8                 | 9. 20. 0                  | 8. 10. 0                 | 94. 39. 46,3                 | 18,4                 |
| 9. 27. 20                | 8. 2. 40                | 94. 23. 53,5                 | 24,7                 | 9. 19. 50                 | 8. 10. 10                | 94. 40. 4,7                  | 18,2                 |
| 9. 27. 10                | 8. 2. 50                | 94. 24. 18,2                 | 24,6                 | 9. 19. 40                 | 8. 10. 20                | 94. 40. 22,9                 | 18,1                 |
| 9. 27. 0                 | 8. 3. 0                 | 94. 24. 42,8                 | 24,4                 | 9. 19. 30                 | 8. 10. 30                | 94. 40. 41,0                 | 18,0                 |
| 9. 26. 50                | 8. 3. 10                | 94. 25. 7,2                  | 24,3                 | 9. 19. 20                 | 8. 10. 40                | 94. 40. 59,0                 | 17,8                 |
| 9. 26. 40                | 8. 3. 20                | 94. 25. 31,5                 | 24,2                 | 9. 19. 10                 | 8. 10. 50                | 94. 41. 16,8                 | 17,6                 |
| 9. 26. 30                | 8. 3. 30                | 94. 25. 55,7                 | 24,0                 | 9. 19. 0                  | 8. 11. 0                 | 94. 41. 34,4                 | 17,5                 |
| 9. 26. 20                | 8. 3. 40                | 94. 26. 19,7                 | 23,9                 | 9. 18. 50                 | 8. 11. 10                | 94. 41. 51,9                 | 17,3                 |
| 9. 26. 10                | 8. 3. 50                | 94. 26. 43,6                 | 23,7                 | 9. 18. 40                 | 8. 11. 20                | 94. 42. 9,2                  | 17,2                 |
| 9. 26. 0                 | 8. 4. 0                 | 94. 27. 7,3                  | 23,6                 | 9. 18. 30                 | 8. 11. 30                | 94. 42. 26,4                 | 17,1                 |
| 9. 25. 50                | 8. 4. 10                | 94. 27. 30,9                 | 23,4                 | 9. 18. 20                 | 8. 11. 40                | 94. 42. 43,5                 | 16,9                 |
| 9. 25. 40                | 8. 4. 20                | 94. 27. 54,3                 | 23,3                 | 9. 18. 10                 | 8. 11. 50                | 94. 43. 0,4                  | 16,7                 |
| 9. 25. 30                | 8. 4. 30                | 94. 28. 17,6                 | 23,2                 | 9. 18. 0                  | 8. 12. 0                 | 94. 43. 17,1                 | 16,6                 |
| 9. 25. 20                | 8. 4. 40                | 94. 28. 40,8                 | 23,0                 | 9. 17. 50                 | 8. 12. 10                | 94. 43. 33,7                 | 16,5                 |
| 9. 25. 10                | 8. 4. 50                | 94. 29. 3,8                  | 22,9                 | 9. 17. 40                 | 8. 12. 20                | 94. 43. 50,2                 | 16,3                 |
| 9. 25. 0                 | 8. 5. 0                 | 94. 29. 26,7                 | 22,8                 | 9. 17. 30                 | 8. 12. 30                | 94. 44. 6,5                  | 16,2                 |
| 9. 24. 50                | 8. 5. 10                | 94. 29. 49,5                 | 22,6                 | 9. 17. 20                 | 8. 12. 40                | 94. 44. 22,7                 | 16,0                 |
| 9. 24. 40                | 8. 5. 20                | 94. 30. 12,1                 | 22,5                 | 9. 17. 10                 | 8. 12. 50                | 94. 44. 38,7                 | 15,9                 |
| 9. 24. 30                | 8. 5. 30                | 94. 30. 34,6                 | 22,3                 | 9. 17. 0                  | 8. 13. 0                 | 94. 44. 54,6                 | 15,7                 |
| 9. 24. 20                | 8. 5. 40                | 94. 30. 56,9                 | 22,2                 | 9. 16. 50                 | 8. 13. 10                | 94. 45. 10,3                 | 15,6                 |
| 9. 24. 10                | 8. 5. 50                | 94. 31. 19,1                 | 22,0                 | 9. 16. 40                 | 8. 13. 20                | 94. 45. 25,9                 | 15,4                 |
| 9. 24. 0                 | 8. 6. 0                 | 94. 31. 41,1                 | 21,9                 | 9. 16. 30                 | 8. 13. 30                | 94. 45. 41,3                 | 15,2                 |
| 9. 23. 50                | 8. 6. 10                | 94. 32. 3,0                  | 21,7                 | 9. 16. 20                 | 8. 13. 40                | 94. 45. 56,5                 | 15,1                 |
| 9. 23. 40                | 8. 6. 20                | 94. 32. 24,7                 | 21,6                 | 9. 16. 10                 | 8. 13. 50                | 94. 46. 11,6                 | 15,0                 |
| 9. 23. 30                | 8. 6. 30                | 94. 32. 46,3                 | 21,4                 | 9. 16. 0                  | 8. 14. 0                 | 94. 46. 26,6                 | 14,8                 |
| 9. 23. 20                | 8. 6. 40                | 94. 33. 7,7                  | 21,3                 | 9. 15. 50                 | 8. 14. 10                | 94. 46. 41,4                 | 14,6                 |
| 9. 23. 10                | 8. 6. 50                | 94. 33. 29,0                 | 21,2                 | 9. 15. 40                 | 8. 14. 20                | 94. 46. 56,0                 | 14,5                 |
| 9. 23. 0                 | 8. 7. 0                 | 94. 33. 50,2                 | 21,0                 | 9. 15. 30                 | 8. 14. 30                | 94. 47. 10,5                 | 14,4                 |
| 9. 22. 50                | 8. 7. 10                | 94. 34. 11,2                 | 20,9                 | 9. 15. 20                 | 8. 14. 40                | 94. 47. 24,9                 | 14,2                 |
| 9. 22. 40                | 8. 7. 20                | 94. 34. 32,1                 | 20,8                 | 9. 15. 10                 | 8. 14. 50                | 94. 47. 39,1                 | 14,0                 |
| 9. 22. 30                | 8. 7. 30                | 94. 34. 52,9                 |                      | 9. 15. 0                  | 8. 15. 0                 | 94. 47. 53,1                 |                      |



## Continuation of TABLE XXXVII.

Distance of the Moon from the North Pole of the Ecliptic.

ARGUMENT XXVIII of Longitude, or Argument I of Latitude.

|        |    |   | Distance from<br>the Pole. | Diff. |       |    |   | Distance from<br>the Pole. | Diff. |
|--------|----|---|----------------------------|-------|-------|----|---|----------------------------|-------|
| s      | o  | ' | o                          | '     | s     | o  | ' | o                          | '     |
| 9. 15. | 0  |   | 94. 47.                    | 53,1  | 9. 7. | 30 |   | 94. 55.                    | 46,9  |
| 9. 14. | 50 |   | 94. 48.                    | 7,0   | 9. 7. | 20 |   | 94. 55.                    | 53,8  |
| 9. 14. | 40 |   | 94. 48.                    | 20,8  | 9. 7. | 10 |   | 94. 56.                    | 0,6   |
| 9. 14. | 30 |   | 94. 48.                    | 34,4  | 9. 7. | 0  |   | 94. 56.                    | 7,3   |
| 9. 14. | 20 |   | 94. 48.                    | 47,9  | 9. 6. | 50 |   | 94. 56.                    | 13,8  |
| 9. 14. | 10 |   | 94. 49.                    | 1,2   | 9. 6. | 40 |   | 94. 56.                    | 20,2  |
| 9. 14. | 0  |   | 94. 49.                    | 14,3  | 9. 6. | 30 |   | 94. 56.                    | 26,4  |
| 9. 13. | 50 |   | 94. 49.                    | 27,3  | 9. 6. | 20 |   | 94. 56.                    | 32,4  |
| 9. 13. | 40 |   | 94. 49.                    | 40,1  | 9. 6. | 10 |   | 94. 56.                    | 38,3  |
| 9. 13. | 30 |   | 94. 49.                    | 52,8  | 9. 6. | 0  |   | 94. 56.                    | 44,0  |
| 9. 13. | 20 |   | 94. 50.                    | 5,3   | 9. 5. | 50 |   | 94. 56.                    | 49,5  |
| 9. 13. | 10 |   | 94. 50.                    | 17,7  | 9. 5. | 40 |   | 94. 56.                    | 54,9  |
| 9. 13. | 0  |   | 94. 50.                    | 29,9  | 9. 5. | 30 |   | 94. 57.                    | 0,2   |
| 9. 12. | 50 |   | 94. 50.                    | 42,0  | 9. 5. | 20 |   | 94. 57.                    | 5,3   |
| 9. 12. | 40 |   | 94. 50.                    | 53,9  | 9. 5. | 10 |   | 94. 57.                    | 10,2  |
| 9. 12. | 30 |   | 94. 51.                    | 5,6   | 9. 5. | 0  |   | 94. 57.                    | 15,0  |
| 9. 12. | 20 |   | 94. 51.                    | 17,2  | 9. 4. | 50 |   | 94. 57.                    | 19,6  |
| 9. 12. | 10 |   | 94. 51.                    | 28,7  | 9. 4. | 40 |   | 94. 57.                    | 24,1  |
| 9. 12. | 0  |   | 94. 51.                    | 40,0  | 9. 4. | 30 |   | 94. 57.                    | 28,4  |
| 9. 11. | 50 |   | 94. 51.                    | 51,2  | 9. 4. | 20 |   | 94. 57.                    | 32,6  |
| 9. 11. | 40 |   | 94. 52.                    | 2,2   | 9. 4. | 10 |   | 94. 57.                    | 36,6  |
| 9. 11. | 30 |   | 94. 52.                    | 13,0  | 9. 4. | 0  |   | 94. 57.                    | 40,5  |
| 9. 11. | 20 |   | 94. 52.                    | 23,7  | 9. 3. | 50 |   | 94. 57.                    | 44,2  |
| 9. 11. | 10 |   | 94. 52.                    | 34,2  | 9. 3. | 40 |   | 94. 57.                    | 47,7  |
| 9. 11. | 0  |   | 94. 52.                    | 44,6  | 9. 3. | 30 |   | 94. 57.                    | 51,1  |
| 9. 10. | 50 |   | 94. 52.                    | 54,8  | 9. 3. | 20 |   | 94. 57.                    | 54,3  |
| 9. 10. | 40 |   | 94. 53.                    | 4,9   | 9. 3. | 10 |   | 94. 57.                    | 57,4  |
| 9. 10. | 30 |   | 94. 53.                    | 14,8  | 9. 3. | 0  |   | 94. 58.                    | 0,3   |
| 9. 10. | 20 |   | 94. 53.                    | 24,6  | 9. 2. | 50 |   | 94. 58.                    | 3,0   |
| 9. 10. | 10 |   | 94. 53.                    | 34,2  | 9. 2. | 40 |   | 94. 58.                    | 5,6   |
| 9. 10. | 0  |   | 94. 53.                    | 43,6  | 9. 2. | 30 |   | 94. 58.                    | 8,0   |
| 9. 9.  | 50 |   | 94. 53.                    | 52,9  | 9. 2. | 20 |   | 94. 58.                    | 10,3  |
| 9. 9.  | 40 |   | 94. 54.                    | 2,0   | 9. 2. | 10 |   | 94. 58.                    | 12,4  |
| 9. 9.  | 30 |   | 94. 54.                    | 11,0  | 9. 2. | 0  |   | 94. 58.                    | 14,4  |
| 9. 9.  | 20 |   | 94. 54.                    | 19,9  | 9. 1. | 50 |   | 94. 58.                    | 16,2  |
| 9. 9.  | 10 |   | 94. 54.                    | 28,6  | 9. 1. | 40 |   | 94. 58.                    | 17,9  |
| 9. 9.  | 0  |   | 94. 54.                    | 37,1  | 9. 1. | 30 |   | 94. 58.                    | 19,4  |
| 9. 8.  | 50 |   | 94. 54.                    | 45,5  | 9. 1. | 20 |   | 94. 58.                    | 20,7  |
| 9. 8.  | 40 |   | 94. 54.                    | 53,7  | 9. 1. | 10 |   | 94. 58.                    | 21,9  |
| 9. 8.  | 30 |   | 94. 55.                    | 1,8   | 9. 1. | 0  |   | 94. 58.                    | 22,9  |
| 9. 8.  | 20 |   | 94. 55.                    | 9,7   | 9. 0. | 50 |   | 94. 58.                    | 23,8  |
| 9. 8.  | 10 |   | 94. 55.                    | 17,5  | 9. 0. | 40 |   | 94. 58.                    | 24,5  |
| 9. 8.  | 0  |   | 94. 55.                    | 25,1  | 9. 0. | 30 |   | 94. 58.                    | 25,0  |
| 9. 7.  | 50 |   | 94. 55.                    | 32,5  | 9. 0. | 20 |   | 94. 58.                    | 25,4  |
| 9. 7.  | 40 |   | 94. 55.                    | 39,8  | 9. 0. | 10 |   | 94. 58.                    | 25,6  |
| 9. 7.  | 30 |   | 94. 55.                    | 46,9  | 9. 0. | 0  |   | 94. 58.                    | 25,7  |



TABLE XXXVIII.

Latitude. Equation II.

ARGUMENT II =  $2(\odot'' - \odot) - I$ .

|    | III <sup>s</sup> . | Diff. | IV <sup>s</sup> . | Diff. | V <sup>s</sup> . | Diff. | VI <sup>s</sup> . | Diff. | VII <sup>s</sup> . | Diff. | VIII <sup>s</sup> . | Diff. |    |
|----|--------------------|-------|-------------------|-------|------------------|-------|-------------------|-------|--------------------|-------|---------------------|-------|----|
| 0  | 0. 0,0             | 0,1   | 1. 10,8           | 4,7   | 4. 24,2          | 8,0   | 8. 48,4           | 9,2   | 13. 12,6           | 7,9   | 16. 26,0            | 4,5   | 30 |
| 1  | 0. 0,1             | 0,2   | 1. 15,5           | 4,8   | 4. 32,2          | 8,1   | 8. 57,6           | 9,3   | 13. 20,5           | 7,9   | 16. 30,5            | 4,4   | 29 |
| 2  | 0. 0,3             | 0,4   | 1. 20,3           | 5,0   | 4. 40,3          | 8,2   | 9. 6,9            | 9,2   | 13. 28,4           | 7,8   | 16. 34,9            | 4,3   | 28 |
| 3  | 0. 0,7             | 0,6   | 1. 25,3           | 5,1   | 4. 48,5          | 8,2   | 9. 16,1           | 9,2   | 13. 36,2           | 7,7   | 16. 39,2            | 4,1   | 27 |
| 4  | 0. 1,3             | 0,7   | 1. 30,4           | 5,1   | 4. 56,7          | 8,3   | 9. 25,3           | 9,2   | 13. 43,9           | 7,6   | 16. 43,3            | 4,0   | 26 |
| 5  | 0. 2,0             | 0,9   | 1. 35,5           | 5,4   | 5. 5,0           | 8,4   | 9. 34,5           | 9,2   | 13. 51,5           | 7,5   | 16. 47,3            | 3,8   | 25 |
| 6  | 0. 2,9             | 1,0   | 1. 40,9           | 5,5   | 5. 13,4          | 8,5   | 9. 43,7           | 9,2   | 13. 59,0           | 7,4   | 16. 51,1            | 3,7   | 24 |
| 7  | 0. 3,9             | 1,2   | 1. 46,4           | 5,6   | 5. 21,9          | 8,5   | 9. 52,9           | 9,1   | 14. 6,4            | 7,3   | 16. 54,8            | 3,5   | 23 |
| 8  | 0. 5,1             | 1,4   | 1. 52,0           | 5,7   | 5. 30,4          | 8,6   | 10. 2,0           | 9,1   | 14. 13,7           | 7,2   | 16. 58,3            | 3,4   | 22 |
| 9  | 0. 6,5             | 1,5   | 1. 57,7           | 5,9   | 5. 39,0          | 8,7   | 10. 11,1          | 9,1   | 14. 20,9           | 7,1   | 17. 1,7             | 3,2   | 21 |
| 10 | 0. 8,0             | 1,7   | 2. 3,6            | 6,0   | 5. 47,7          | 8,7   | 10. 20,2          | 9,1   | 14. 28,0           | 7,0   | 17. 4,9             | 3,1   | 20 |
| 11 | 0. 9,7             | 1,8   | 2. 9,6            | 6,1   | 5. 56,4          | 8,7   | 10. 29,3          | 9,0   | 14. 35,0           | 6,9   | 17. 8,0             | 2,9   | 19 |
| 12 | 0. 11,5            | 2,0   | 2. 15,7           | 6,2   | 6. 5,1           | 8,8   | 10. 38,3          | 9,0   | 14. 41,9           | 6,8   | 17. 10,9            | 2,8   | 18 |
| 13 | 0. 13,5            | 2,2   | 2. 21,9           | 6,3   | 6. 13,9          | 8,9   | 10. 47,3          | 8,9   | 14. 48,7           | 6,7   | 17. 13,7            | 2,6   | 17 |
| 14 | 0. 15,7            | 2,3   | 2. 28,2           | 6,4   | 6. 22,8          | 8,9   | 10. 56,2          | 8,9   | 14. 55,4           | 6,6   | 17. 16,3            | 2,5   | 16 |
| 15 | 0. 18,0            | 2,5   | 2. 34,6           | 6,6   | 6. 31,7          | 8,9   | 11. 5,1           | 8,9   | 15. 2,0            | 6,5   | 17. 18,8            | 2,3   | 15 |
| 16 | 0. 20,5            | 2,6   | 2. 41,2           | 6,8   | 6. 40,6          | 8,9   | 11. 14,0          | 8,9   | 15. 8,5            | 6,4   | 17. 21,1            | 2,2   | 14 |
| 17 | 0. 23,1            | 2,8   | 2. 48,0           | 6,8   | 6. 49,5          | 9,0   | 11. 22,9          | 8,8   | 15. 14,9           | 6,2   | 17. 23,3            | 2,0   | 13 |
| 18 | 0. 25,9            | 2,9   | 2. 54,8           | 6,9   | 6. 58,5          | 9,1   | 11. 31,7          | 8,7   | 15. 21,1           | 6,1   | 17. 25,3            | 1,8   | 12 |
| 19 | 0. 28,8            | 3,1   | 3. 1,7            | 7,0   | 7. 7,6           | 9,1   | 11. 40,4          | 8,7   | 15. 27,2           | 6,0   | 17. 27,1            | 1,7   | 11 |
| 20 | 0. 31,9            | 3,2   | 3. 8,7            | 7,1   | 7. 16,7          | 9,1   | 11. 49,1          | 8,7   | 15. 33,2           | 5,9   | 17. 28,8            | 1,5   | 10 |
| 21 | 0. 35,1            | 3,4   | 3. 15,8           | 7,2   | 7. 25,8          | 9,1   | 11. 57,8          | 8,6   | 15. 39,1           | 5,7   | 17. 30,3            | 1,4   | 9  |
| 22 | 0. 38,5            | 3,5   | 3. 23,0           | 7,4   | 7. 34,9          | 9,1   | 12. 6,4           | 8,5   | 15. 44,8           | 5,6   | 17. 31,7            | 1,2   | 8  |
| 23 | 0. 42,0            | 3,7   | 3. 30,4           | 7,4   | 7. 44,0          | 9,1   | 12. 14,9          | 8,5   | 15. 50,4           | 5,5   | 17. 32,9            | 1,0   | 7  |
| 24 | 0. 45,7            | 3,8   | 3. 37,8           | 7,5   | 7. 53,1          | 9,2   | 12. 23,4          | 8,4   | 15. 55,9           | 5,3   | 17. 33,9            | 0,9   | 6  |
| 25 | 0. 49,5            | 4,0   | 3. 45,3           | 7,6   | 8. 2,3           | 9,2   | 12. 31,8          | 8,3   | 16. 1,2            | 5,2   | 17. 34,8            | 0,7   | 5  |
| 26 | 0. 53,5            | 4,1   | 3. 52,9           | 7,7   | 8. 11,5          | 9,2   | 12. 40,1          | 8,2   | 16. 6,4            | 5,1   | 17. 35,5            | 0,6   | 4  |
| 27 | 0. 57,6            | 4,3   | 4. 0,6            | 7,8   | 8. 20,7          | 9,2   | 12. 48,3          | 8,2   | 16. 11,5           | 5,0   | 17. 36,1            | 0,4   | 3  |
| 28 | 1. 1,9             | 4,4   | 4. 8,4            | 7,9   | 8. 29,9          | 9,3   | 12. 56,5          | 8,1   | 16. 16,5           | 4,8   | 17. 36,5            | 0,2   | 2  |
| 29 | 1. 6,3             | 4,5   | 4. 16,3           | 7,9   | 8. 39,2          | 9,2   | 13. 4,6           | 8,0   | 16. 21,3           | 4,7   | 17. 36,7            | 0,1   | 1  |
| 30 | 1. 10,8            |       | 4. 24,2           |       | 8. 48,4          |       | 13. 12,6          |       | 16. 26,0           |       | 17. 35,8            |       | 0  |
|    | II <sup>s</sup> .  |       | I <sup>s</sup> .  |       | Os.              |       | XI <sup>s</sup> . |       | X <sup>s</sup> .   |       | IX <sup>s</sup> .   |       |    |



Continuation of TABLE XXXVIII.

| Latitude. Equation III.                   |                    |                   |                  |                   |                    |                     |    | Latitude. Equation IV.                      |                   |                   |                  |                   |                    |                     |    |
|-------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|---------------------------------------------|-------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| ARGUMENT III = I - a = (C - 2⊙) - N' - a. |                    |                   |                  |                   |                    |                     |    | ARGUMENT IV = I - A = (C''' - 2⊙ - N' - A). |                   |                   |                  |                   |                    |                     |    |
|                                           | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |                                             | III.              | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
| 0                                         | "                  | "                 | "                | "                 | "                  | "                   | 0  | 0                                           | "                 | "                 | "                | "                 | "                  | "                   | 0  |
| 1                                         | 6,2                | 5,8               | 4,7              | 3,1               | 1,5                | 0,4                 | 30 | 1                                           | 0,0               | 2,4               | 8,8              | 17,6              | 26,4               | 32,8                | 30 |
| 2                                         | 6,2                | 5,8               | 4,6              | 3,0               | 1,5                | 0,4                 | 29 | 2                                           | 0,0               | 2,6               | 9,0              | 17,9              | 26,6               | 32,9                | 29 |
| 3                                         | 6,2                | 5,7               | 4,6              | 2,9               | 1,5                | 0,4                 | 28 | 3                                           | 0,0               | 2,7               | 9,3              | 18,2              | 26,9               | 33,1                | 28 |
| 4                                         | 6,2                | 5,7               | 4,5              | 2,9               | 1,4                | 0,3                 | 27 | 4                                           | 0,0               | 2,9               | 9,6              | 18,5              | 27,1               | 33,2                | 27 |
| 5                                         | 6,2                | 5,7               | 4,5              | 2,8               | 1,4                | 0,3                 | 26 | 5                                           | 0,0               | 3,0               | 9,9              | 18,8              | 27,4               | 33,4                | 26 |
|                                           | 6,2                | 5,6               | 4,4              | 2,8               | 1,3                | 0,3                 | 25 |                                             | 0,1               | 3,2               | 10,0             | 19,1              | 27,6               | 33,6                | 25 |
| 6                                         | 6,2                | 5,6               | 4,4              | 2,7               | 1,3                | 0,3                 | 24 | 6                                           | 0,1               | 3,4               | 10,4             | 19,4              | 27,9               | 33,7                | 24 |
| 7                                         | 6,2                | 5,6               | 4,3              | 2,7               | 1,2                | 0,2                 | 23 | 7                                           | 0,2               | 3,5               | 10,7             | 19,7              | 28,1               | 33,8                | 23 |
| 8                                         | 6,2                | 5,5               | 4,3              | 2,6               | 1,2                | 0,2                 | 22 | 8                                           | 0,2               | 3,7               | 11,0             | 20,0              | 28,4               | 33,9                | 22 |
| 9                                         | 6,2                | 5,5               | 4,2              | 2,6               | 1,1                | 0,2                 | 21 | 9                                           | 0,3               | 3,9               | 11,3             | 20,4              | 28,7               | 34,0                | 21 |
| 10                                        | 6,2                | 5,5               | 4,2              | 2,5               | 1,1                | 0,2                 | 20 | 10                                          | 0,3               | 4,1               | 11,6             | 20,7              | 28,9               | 34,1                | 20 |
| 11                                        | 6,1                | 5,4               | 4,1              | 2,4               | 1,1                | 0,2                 | 19 | 11                                          | 0,4               | 4,3               | 11,9             | 21,0              | 29,2               | 34,2                | 19 |
| 12                                        | 6,1                | 5,4               | 4,1              | 2,4               | 1,0                | 0,1                 | 18 | 12                                          | 0,4               | 4,5               | 12,2             | 21,3              | 29,4               | 34,3                | 18 |
| 13                                        | 6,1                | 5,4               | 4,0              | 2,3               | 1,0                | 0,1                 | 17 | 13                                          | 0,5               | 4,7               | 12,5             | 21,6              | 29,6               | 34,4                | 17 |
| 14                                        | 6,1                | 5,3               | 4,0              | 2,3               | 0,9                | 0,1                 | 16 | 14                                          | 0,5               | 4,9               | 12,7             | 21,9              | 29,8               | 34,5                | 16 |
| 15                                        | 6,1                | 5,3               | 4,0              | 2,2               | 0,9                | 0,1                 | 15 | 15                                          | 0,6               | 5,2               | 13,0             | 22,2              | 30,0               | 34,6                | 15 |
| 16                                        | 6,1                | 5,3               | 3,9              | 2,2               | 0,9                | 0,1                 | 14 | 16                                          | 0,7               | 5,4               | 13,3             | 22,5              | 30,3               | 34,7                | 14 |
| 17                                        | 6,1                | 5,2               | 3,9              | 2,2               | 0,8                | 0,1                 | 13 | 17                                          | 0,8               | 5,6               | 13,6             | 22,7              | 30,5               | 34,7                | 13 |
| 18                                        | 6,1                | 5,2               | 3,8              | 2,1               | 0,8                | 0,1                 | 12 | 18                                          | 0,9               | 5,8               | 13,9             | 23,0              | 30,7               | 34,8                | 12 |
| 19                                        | 6,0                | 5,1               | 3,8              | 2,1               | 0,8                | 0,1                 | 11 | 19                                          | 1,0               | 6,0               | 14,2             | 23,3              | 30,9               | 34,8                | 11 |
| 20                                        | 6,0                | 5,1               | 3,7              | 2,0               | 0,7                | 0,0                 | 10 | 20                                          | 1,1               | 6,3               | 14,5             | 23,6              | 31,1               | 34,9                | 10 |
| 21                                        | 6,0                | 5,1               | 3,6              | 2,0               | 0,7                | 0,0                 | 9  | 21                                          | 1,2               | 6,5               | 14,8             | 23,9              | 31,3               | 34,9                | 9  |
| 22                                        | 6,0                | 5,0               | 3,6              | 1,9               | 0,7                | 0,0                 | 8  | 22                                          | 1,3               | 6,8               | 15,2             | 24,2              | 31,5               | 35,0                | 8  |
| 23                                        | 6,0                | 5,0               | 3,5              | 1,9               | 0,6                | 0,0                 | 7  | 23                                          | 1,4               | 7,1               | 15,5             | 24,5              | 31,7               | 35,0                | 7  |
| 24                                        | 5,9                | 4,9               | 3,5              | 1,8               | 0,6                | 0,0                 | 6  | 24                                          | 1,5               | 7,3               | 15,8             | 24,8              | 31,8               | 35,1                | 6  |
| 25                                        | 5,9                | 4,9               | 3,4              | 1,8               | 0,6                | 0,0                 | 5  | 25                                          | 1,6               | 7,6               | 16,1             | 25,1              | 32,0               | 35,1                | 5  |
| 26                                        | 5,9                | 4,8               | 3,4              | 1,7               | 0,5                | 0,0                 | 4  | 26                                          | 1,8               | 7,8               | 16,4             | 25,3              | 32,1               | 35,2                | 4  |
| 27                                        | 5,9                | 4,8               | 3,3              | 1,7               | 0,5                | 0,0                 | 3  | 27                                          | 2,0               | 8,1               | 16,7             | 25,6              | 32,3               | 35,2                | 3  |
| 28                                        | 5,8                | 4,7               | 3,3              | 1,6               | 0,5                | 0,0                 | 2  | 28                                          | 2,1               | 8,3               | 17,0             | 25,9              | 32,5               | 35,2                | 2  |
| 29                                        | 5,8                | 4,7               | 3,2              | 1,6               | 0,4                | 0,0                 | 1  | 29                                          | 2,3               | 8,6               | 17,3             | 26,1              | 32,6               | 35,2                | 1  |
| 30                                        | 5,8                | 4,7               | 3,1              | 1,5               | 0,4                | 0,0                 | 0  | 30                                          | 2,4               | 8,8               | 17,6             | 26,4              | 32,8               | 35,2                | 0  |
|                                           | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |                                             | II <sup>s</sup> . | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



Continuation of TABLE XXXVIII.

| Latitude. Equation V.                       |                    |                   |                  |                   |                    |                     |    | Latitude. Equation VI.                      |                    |                   |                  |                   |                    |                     |    |
|---------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|---------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| ARGUMENT V = IV - A = (C''' - 2⊙ - N) - 2A. |                    |                   |                  |                   |                    |                     |    | ARGUMENT VI = V - A = (C''' - 2⊙ - N) - 3A. |                    |                   |                  |                   |                    |                     |    |
|                                             | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |                                             | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
| 0                                           | "                  | "                 | "                | "                 | "                  | "                   | 0  | 0                                           | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 1                                           | 50,2               | 46,8              | 37,7             | 25,1              | 12,5               | 3,4                 | 30 | 1                                           | 3,8                | 3,6               | 2,9              | 1,9               | 0,9                | 0,2                 | 30 |
| 2                                           | 50,2               | 46,6              | 37,3             | 24,7              | 12,2               | 3,1                 | 29 | 2                                           | 3,8                | 3,5               | 2,8              | 1,9               | 0,9                | 0,2                 | 29 |
| 3                                           | 50,2               | 46,4              | 36,9             | 24,2              | 11,8               | 2,9                 | 28 | 3                                           | 3,8                | 3,5               | 2,8              | 1,8               | 0,9                | 0,2                 | 28 |
| 4                                           | 50,2               | 46,2              | 36,5             | 23,8              | 11,4               | 2,7                 | 27 | 4                                           | 3,8                | 3,5               | 2,8              | 1,8               | 0,9                | 0,2                 | 27 |
| 5                                           | 50,1               | 45,9              | 36,1             | 23,3              | 11,1               | 2,5                 | 26 | 5                                           | 3,8                | 3,5               | 2,7              | 1,8               | 0,8                | 0,2                 | 26 |
| 6                                           | 50,1               | 45,7              | 35,7             | 22,9              | 10,7               | 2,3                 | 25 | 6                                           | 3,8                | 3,5               | 2,7              | 1,7               | 0,8                | 0,2                 | 25 |
| 7                                           | 50,1               | 45,4              | 35,3             | 22,5              | 10,3               | 2,2                 | 24 | 7                                           | 3,8                | 3,4               | 2,7              | 1,7               | 0,8                | 0,2                 | 24 |
| 8                                           | 50,0               | 45,1              | 34,9             | 22,1              | 10,0               | 2,0                 | 23 | 8                                           | 3,8                | 3,4               | 2,6              | 1,7               | 0,8                | 0,2                 | 23 |
| 9                                           | 50,0               | 44,9              | 34,5             | 21,6              | 9,6                | 1,8                 | 22 | 9                                           | 3,8                | 3,4               | 2,6              | 1,6               | 0,8                | 0,1                 | 22 |
| 10                                          | 49,9               | 44,6              | 34,1             | 21,2              | 9,3                | 1,7                 | 21 | 10                                          | 3,8                | 3,4               | 2,6              | 1,6               | 0,7                | 0,1                 | 21 |
| 11                                          | 49,8               | 44,2              | 33,7             | 20,7              | 9,0                | 1,5                 | 20 | 11                                          | 3,8                | 3,4               | 2,6              | 1,6               | 0,7                | 0,1                 | 20 |
| 12                                          | 49,7               | 44,0              | 33,3             | 20,3              | 8,6                | 1,4                 | 19 | 12                                          | 3,8                | 3,3               | 2,5              | 1,5               | 0,7                | 0,1                 | 19 |
| 13                                          | 49,7               | 43,8              | 32,8             | 19,9              | 8,3                | 1,2                 | 18 | 13                                          | 3,8                | 3,3               | 2,5              | 1,5               | 0,7                | 0,1                 | 18 |
| 14                                          | 49,6               | 43,5              | 32,4             | 19,5              | 8,0                | 1,1                 | 17 | 14                                          | 3,8                | 3,3               | 2,5              | 1,5               | 0,6                | 0,1                 | 17 |
| 15                                          | 49,5               | 43,2              | 32,0             | 19,0              | 7,7                | 1,0                 | 16 | 15                                          | 3,7                | 3,3               | 2,5              | 1,4               | 0,6                | 0,1                 | 16 |
| 16                                          | 49,3               | 42,9              | 31,6             | 18,6              | 7,3                | 0,9                 | 15 | 16                                          | 3,7                | 3,2               | 2,4              | 1,4               | 0,6                | 0,1                 | 15 |
| 17                                          | 49,2               | 42,5              | 31,2             | 18,2              | 7,0                | 0,7                 | 14 | 17                                          | 3,7                | 3,2               | 2,4              | 1,3               | 0,5                | 0,1                 | 14 |
| 18                                          | 49,1               | 42,2              | 30,7             | 17,8              | 6,7                | 0,6                 | 13 | 18                                          | 3,7                | 3,2               | 2,3              | 1,3               | 0,5                | 0,0                 | 13 |
| 19                                          | 49,0               | 41,9              | 30,3             | 17,4              | 6,4                | 0,5                 | 12 | 19                                          | 3,7                | 3,1               | 2,3              | 1,3               | 0,5                | 0,0                 | 12 |
| 20                                          | 48,8               | 41,6              | 29,9             | 16,9              | 6,2                | 0,5                 | 11 | 20                                          | 3,7                | 3,1               | 2,3              | 1,3               | 0,5                | 0,0                 | 11 |
| 21                                          | 48,7               | 41,2              | 29,5             | 16,5              | 6,0                | 0,4                 | 10 | 21                                          | 3,7                | 3,1               | 2,2              | 1,2               | 0,4                | 0,0                 | 10 |
| 22                                          | 48,5               | 40,9              | 29,0             | 16,1              | 5,6                | 0,3                 | 9  | 22                                          | 3,7                | 3,1               | 2,2              | 1,2               | 0,4                | 0,0                 | 9  |
| 23                                          | 48,4               | 40,6              | 28,6             | 15,7              | 5,3                | 0,2                 | 8  | 23                                          | 3,7                | 3,0               | 2,2              | 1,2               | 0,4                | 0,0                 | 8  |
| 24                                          | 48,2               | 40,2              | 28,2             | 15,3              | 5,1                | 0,2                 | 7  | 24                                          | 3,6                | 3,0               | 2,1              | 1,2               | 0,4                | 0,0                 | 7  |
| 25                                          | 48,0               | 39,9              | 27,7             | 14,9              | 4,8                | 0,1                 | 6  | 25                                          | 3,6                | 3,0               | 2,1              | 1,1               | 0,4                | 0,0                 | 6  |
| 26                                          | 47,9               | 39,5              | 27,3             | 14,4              | 4,5                | 0,1                 | 5  | 26                                          | 3,6                | 3,0               | 2,1              | 1,1               | 0,3                | 0,0                 | 5  |
| 27                                          | 47,7               | 39,1              | 26,9             | 14,1              | 4,3                | 0,1                 | 4  | 27                                          | 3,6                | 3,0               | 2,0              | 1,1               | 0,3                | 0,0                 | 4  |
| 28                                          | 47,5               | 38,8              | 26,4             | 13,7              | 4,0                | 0,0                 | 3  | 28                                          | 3,6                | 2,9               | 2,0              | 1,0               | 0,3                | 0,0                 | 3  |
| 29                                          | 47,3               | 38,4              | 26,0             | 13,3              | 3,8                | 0,0                 | 2  | 29                                          | 3,6                | 2,9               | 2,0              | 1,0               | 0,3                | 0,0                 | 2  |
| 30                                          | 47,1               | 38,0              | 25,5             | 12,9              | 3,6                | 0,0                 | 1  | 30                                          | 3,6                | 2,9               | 1,9              | 1,0               | 0,3                | 0,0                 | 1  |
|                                             | 46,8               | 37,7              | 25,1             | 12,5              | 3,4                | 0,0                 | 0  |                                             | 3,6                | 2,9               | 1,9              | 0,9               | 0,2                | 0,0                 | 0  |
|                                             | II <sup>s</sup> .  | I <sup>s</sup> .  | 0 <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |                                             | II <sup>s</sup> .  | I <sup>s</sup> .  | 0 <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



## Continuation of TABLE XXXVIII.

| Latitude. Equation VII.                                   |                    |                   |                  |                   |                    |                     |    | Latitude. Equation VIII.                                   |                    |                   |                  |                   |                    |                     |    |
|-----------------------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|------------------------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
| ARGUMENT VII = II + a = ( $\zeta''' - 2 \odot - N$ ) + a. |                    |                   |                  |                   |                    |                     |    | ARGUMENT VIII = II - a = ( $\zeta''' - 2 \odot - N$ ) - a. |                    |                   |                  |                   |                    |                     |    |
|                                                           | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |                                                            | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
| 0                                                         | "                  | "                 | "                | "                 | "                  | "                   | 0  | 0                                                          | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 0                                                         | 0,0                | 1,2               | 4,5              | 9,0               | 13,5               | 16,8                | 30 | 0                                                          | 0,0                | 0,5               | 1,8              | 3,7               | 5,6                | 6,9                 | 30 |
| 1                                                         | 0,0                | 1,3               | 4,6              | 9,2               | 13,6               | 16,9                | 29 | 1                                                          | 0,0                | 0,5               | 1,9              | 3,8               | 5,6                | 6,9                 | 29 |
| 2                                                         | 0,0                | 1,4               | 4,8              | 9,3               | 13,8               | 17,0                | 28 | 2                                                          | 0,0                | 0,6               | 2,0              | 3,8               | 5,7                | 7,0                 | 28 |
| 3                                                         | 0,0                | 1,5               | 4,9              | 9,5               | 13,9               | 17,0                | 27 | 3                                                          | 0,0                | 0,6               | 2,0              | 3,9               | 5,7                | 7,0                 | 27 |
| 4                                                         | 0,0                | 1,5               | 5,0              | 9,6               | 14,0               | 17,1                | 26 | 4                                                          | 0,0                | 0,6               | 2,1              | 4,0               | 5,8                | 7,0                 | 26 |
| 5                                                         | 0,0                | 1,6               | 5,2              | 9,8               | 14,2               | 17,2                | 25 | 5                                                          | 0,0                | 0,7               | 2,1              | 4,0               | 5,8                | 7,1                 | 25 |
| 6                                                         | 0,0                | 1,7               | 5,3              | 9,9               | 14,3               | 17,2                | 24 | 6                                                          | 0,0                | 0,7               | 2,2              | 4,1               | 5,9                | 7,1                 | 24 |
| 7                                                         | 0,1                | 1,8               | 5,5              | 10,1              | 14,4               | 17,3                | 23 | 7                                                          | 0,0                | 0,7               | 2,3              | 4,2               | 5,9                | 7,1                 | 23 |
| 8                                                         | 0,1                | 1,9               | 5,6              | 10,3              | 14,5               | 17,4                | 22 | 8                                                          | 0,0                | 0,8               | 2,3              | 4,2               | 6,0                | 7,1                 | 22 |
| 9                                                         | 0,1                | 2,0               | 5,8              | 10,4              | 14,7               | 17,4                | 21 | 9                                                          | 0,0                | 0,8               | 2,4              | 4,3               | 6,0                | 7,2                 | 21 |
| 10                                                        | 0,1                | 2,1               | 5,9              | 10,6              | 14,8               | 17,5                | 20 | 10                                                         | 0,1                | 0,9               | 2,4              | 4,3               | 6,1                | 7,2                 | 20 |
| 11                                                        | 0,2                | 2,2               | 6,1              | 10,7              | 14,9               | 17,5                | 19 | 11                                                         | 0,1                | 0,9               | 2,5              | 4,4               | 6,1                | 7,2                 | 19 |
| 12                                                        | 0,2                | 2,3               | 6,2              | 10,9              | 15,0               | 17,6                | 18 | 12                                                         | 0,1                | 0,9               | 2,6              | 4,5               | 6,2                | 7,2                 | 18 |
| 13                                                        | 0,2                | 2,4               | 6,4              | 11,0              | 15,1               | 17,6                | 17 | 13                                                         | 0,1                | 1,0               | 2,6              | 4,5               | 6,2                | 7,2                 | 17 |
| 14                                                        | 0,3                | 2,5               | 6,5              | 11,2              | 15,3               | 17,7                | 16 | 14                                                         | 0,1                | 1,0               | 2,7              | 4,6               | 6,3                | 7,3                 | 16 |
| 15                                                        | 0,3                | 2,6               | 6,7              | 11,3              | 15,4               | 17,7                | 15 | 15                                                         | 0,1                | 1,1               | 2,7              | 4,7               | 6,3                | 7,3                 | 15 |
| 16                                                        | 0,3                | 2,7               | 6,8              | 11,5              | 15,5               | 17,7                | 14 | 16                                                         | 0,1                | 1,1               | 2,8              | 4,7               | 6,4                | 7,3                 | 14 |
| 17                                                        | 0,4                | 2,9               | 7,0              | 11,6              | 15,6               | 17,8                | 13 | 17                                                         | 0,2                | 1,2               | 2,9              | 4,8               | 6,4                | 7,3                 | 13 |
| 18                                                        | 0,4                | 3,0               | 7,1              | 11,8              | 15,7               | 17,8                | 12 | 18                                                         | 0,2                | 1,2               | 2,9              | 4,8               | 6,5                | 7,3                 | 12 |
| 19                                                        | 0,5                | 3,1               | 7,3              | 11,9              | 15,8               | 17,8                | 11 | 19                                                         | 0,2                | 1,3               | 3,0              | 4,9               | 6,5                | 7,3                 | 11 |
| 20                                                        | 0,5                | 3,2               | 7,4              | 12,1              | 15,9               | 17,9                | 10 | 20                                                         | 0,2                | 1,3               | 3,1              | 5,0               | 6,5                | 7,3                 | 10 |
| 21                                                        | 0,6                | 3,3               | 7,6              | 12,2              | 16,0               | 17,9                | 9  | 21                                                         | 0,2                | 1,4               | 3,1              | 5,0               | 6,6                | 7,4                 | 9  |
| 22                                                        | 0,6                | 3,5               | 7,7              | 12,4              | 16,1               | 17,9                | 8  | 22                                                         | 0,3                | 1,4               | 3,2              | 5,1               | 6,6                | 7,4                 | 8  |
| 23                                                        | 0,7                | 3,6               | 7,9              | 12,5              | 16,2               | 17,9                | 7  | 23                                                         | 0,3                | 1,5               | 3,2              | 5,1               | 6,7                | 7,4                 | 7  |
| 24                                                        | 0,8                | 3,7               | 8,1              | 12,7              | 16,3               | 18,0                | 6  | 24                                                         | 0,3                | 1,5               | 3,3              | 5,2               | 6,7                | 7,4                 | 6  |
| 25                                                        | 0,8                | 3,8               | 8,2              | 12,8              | 16,4               | 18,0                | 5  | 25                                                         | 0,3                | 1,6               | 3,4              | 5,3               | 6,7                | 7,4                 | 5  |
| 26                                                        | 0,9                | 4,0               | 8,4              | 13,0              | 16,5               | 18,0                | 4  | 26                                                         | 0,4                | 1,6               | 3,4              | 5,3               | 6,8                | 7,4                 | 4  |
| 27                                                        | 1,0                | 4,1               | 8,5              | 13,1              | 16,5               | 18,0                | 3  | 27                                                         | 0,4                | 1,7               | 3,5              | 5,4               | 6,8                | 7,4                 | 3  |
| 28                                                        | 1,0                | 4,2               | 8,7              | 13,2              | 16,6               | 18,0                | 2  | 28                                                         | 0,4                | 1,7               | 3,6              | 5,4               | 6,8                | 7,4                 | 2  |
| 29                                                        | 1,1                | 4,4               | 8,8              | 13,4              | 16,7               | 18,0                | 1  | 29                                                         | 0,5                | 1,8               | 3,6              | 5,5               | 6,9                | 7,4                 | 1  |
| 30                                                        | 1,2                | 4,5               | 9,0              | 13,5              | 16,8               | 18,0                | 0  | 30                                                         | 0,5                | 1,8               | 3,7              | 5,6               | 6,9                | 7,4                 | 0  |
|                                                           | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |                                                            | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



Continuation of TABLE XXXVIII.

| Latitude. Equation IX.<br>ARGUMENT IX = II + A. |                    |                   |                  |                   |                    |                     |    | Latitude. Equation X.<br>ARGUMENT X = II - A. |                    |                   |                  |                   |                    |                     |    |
|-------------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|-----------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
|                                                 | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |                                               | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
| 0                                               | "                  | "                 | "                | "                 | "                  | "                   | 0  | 0                                             | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 0                                               | 0,0                | 0,3               | 1,1              | 2,2               | 3,3                | 4,1                 | 30 | 0                                             | 31,8               | 29,7              | 23,9             | 15,9              | 7,9                | 2,1                 | 30 |
| 1                                               | 0,0                | 0,3               | 1,1              | 2,2               | 3,3                | 4,1                 | 29 | 1                                             | 31,8               | 29,5              | 23,6             | 15,6              | 7,7                | 2,0                 | 29 |
| 2                                               | 0,0                | 0,3               | 1,2              | 2,3               | 3,4                | 4,1                 | 28 | 2                                             | 31,8               | 29,3              | 23,4             | 15,3              | 7,5                | 1,9                 | 28 |
| 3                                               | 0,0                | 0,3               | 1,2              | 2,3               | 3,4                | 4,2                 | 27 | 3                                             | 31,8               | 29,2              | 23,1             | 15,1              | 7,2                | 1,7                 | 27 |
| 4                                               | 0,0                | 0,4               | 1,2              | 2,3               | 3,4                | 4,2                 | 26 | 4                                             | 31,8               | 29,1              | 22,9             | 14,8              | 7,0                | 1,6                 | 26 |
| 5                                               | 0,0                | 0,4               | 1,3              | 2,4               | 3,5                | 4,2                 | 25 | 5                                             | 31,7               | 28,9              | 22,6             | 14,5              | 6,8                | 1,5                 | 25 |
| 6                                               | 0,0                | 0,4               | 1,3              | 2,4               | 3,5                | 4,2                 | 24 | 6                                             | 31,7               | 28,8              | 22,4             | 14,2              | 6,5                | 1,4                 | 24 |
| 7                                               | 0,0                | 0,4               | 1,3              | 2,5               | 3,5                | 4,2                 | 23 | 7                                             | 31,7               | 28,6              | 22,1             | 14,0              | 6,3                | 1,3                 | 23 |
| 8                                               | 0,0                | 0,5               | 1,4              | 2,5               | 3,6                | 4,2                 | 22 | 8                                             | 31,6               | 28,4              | 21,9             | 13,7              | 6,1                | 1,2                 | 22 |
| 9                                               | 0,0                | 0,5               | 1,4              | 2,6               | 3,6                | 4,3                 | 21 | 9                                             | 31,6               | 28,3              | 21,6             | 13,4              | 5,9                | 1,1                 | 21 |
| 10                                              | 0,0                | 0,5               | 1,4              | 2,6               | 3,6                | 4,3                 | 20 | 10                                            | 31,6               | 28,1              | 21,3             | 13,1              | 5,7                | 1,0                 | 20 |
| 11                                              | 0,0                | 0,5               | 1,5              | 2,6               | 3,6                | 4,3                 | 19 | 11                                            | 31,5               | 27,9              | 21,1             | 12,9              | 5,5                | 0,9                 | 19 |
| 12                                              | 0,0                | 0,6               | 1,5              | 2,7               | 3,7                | 4,3                 | 18 | 12                                            | 31,5               | 27,7              | 20,8             | 12,6              | 5,3                | 0,8                 | 18 |
| 13                                              | 0,0                | 0,6               | 1,6              | 2,7               | 3,7                | 4,3                 | 17 | 13                                            | 31,4               | 27,5              | 20,6             | 12,3              | 5,1                | 0,7                 | 17 |
| 14                                              | 0,1                | 0,6               | 1,6              | 2,7               | 3,7                | 4,3                 | 16 | 14                                            | 31,3               | 27,3              | 20,3             | 12,0              | 4,9                | 0,6                 | 16 |
| 15                                              | 0,1                | 0,6               | 1,6              | 2,8               | 3,8                | 4,3                 | 15 | 15                                            | 31,3               | 27,1              | 20,0             | 11,8              | 4,7                | 0,5                 | 15 |
| 16                                              | 0,1                | 0,7               | 1,7              | 2,8               | 3,8                | 4,3                 | 14 | 16                                            | 31,2               | 26,9              | 19,8             | 11,5              | 4,5                | 0,5                 | 14 |
| 17                                              | 0,1                | 0,7               | 1,7              | 2,8               | 3,8                | 4,4                 | 13 | 17                                            | 31,1               | 26,7              | 19,5             | 11,2              | 4,3                | 0,4                 | 13 |
| 18                                              | 0,1                | 0,7               | 1,7              | 2,9               | 3,8                | 4,4                 | 12 | 18                                            | 31,0               | 26,5              | 19,2             | 11,0              | 4,1                | 0,3                 | 12 |
| 19                                              | 0,1                | 0,8               | 1,8              | 2,9               | 3,9                | 4,4                 | 11 | 19                                            | 30,9               | 26,3              | 18,9             | 10,7              | 3,9                | 0,3                 | 11 |
| 20                                              | 0,1                | 0,8               | 1,8              | 3,0               | 3,9                | 4,4                 | 10 | 20                                            | 30,8               | 26,1              | 18,7             | 10,5              | 3,7                | 0,2                 | 10 |
| 21                                              | 0,1                | 0,8               | 1,8              | 3,0               | 3,9                | 4,4                 | 9  | 21                                            | 30,7               | 25,9              | 18,4             | 10,2              | 3,5                | 0,2                 | 9  |
| 22                                              | 0,2                | 0,8               | 1,9              | 3,0               | 3,9                | 4,4                 | 8  | 22                                            | 30,6               | 25,7              | 18,1             | 9,9               | 3,4                | 0,2                 | 8  |
| 23                                              | 0,2                | 0,9               | 1,9              | 3,1               | 4,0                | 4,4                 | 7  | 23                                            | 30,5               | 25,5              | 17,8             | 9,7               | 3,2                | 0,1                 | 7  |
| 24                                              | 0,2                | 0,9               | 2,0              | 3,1               | 4,0                | 4,4                 | 6  | 24                                            | 30,4               | 25,3              | 17,6             | 9,4               | 3,0                | 0,1                 | 6  |
| 25                                              | 0,2                | 0,9               | 2,0              | 3,1               | 4,0                | 4,4                 | 5  | 25                                            | 30,3               | 25,0              | 17,3             | 9,2               | 2,9                | 0,1                 | 5  |
| 26                                              | 0,2                | 1,0               | 2,1              | 3,2               | 4,0                | 4,4                 | 4  | 26                                            | 30,2               | 24,8              | 17,0             | 8,9               | 2,7                | 0,0                 | 4  |
| 27                                              | 0,2                | 1,0               | 2,1              | 3,2               | 4,1                | 4,4                 | 3  | 27                                            | 30,1               | 24,6              | 16,7             | 8,7               | 2,6                | 0,0                 | 3  |
| 28                                              | 0,3                | 1,0               | 2,1              | 3,3               | 4,1                | 4,4                 | 2  | 28                                            | 29,9               | 24,3              | 16,5             | 8,4               | 2,5                | 0,0                 | 2  |
| 29                                              | 0,3                | 1,1               | 2,2              | 3,3               | 4,1                | 4,4                 | 1  | 29                                            | 29,8               | 24,1              | 16,2             | 8,2               | 2,3                | 0,0                 | 1  |
| 30                                              | 0,3                | 1,1               | 2,2              | 3,3               | 4,1                | 4,4                 | 0  | 30                                            | 29,7               | 23,9              | 15,9             | 7,9               | 2,1                | 0,0                 | 0  |
|                                                 | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |                                               | II <sup>s</sup> .  | I <sup>s</sup> .  | O <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



## Continuation of TABLE XXXVIII.

| Latitude. Equation XI.<br>ARGUMENT XI = X - A. |                    |                   |                  |                   |                    |                     |    | Latitude. Equation XII.<br>ARGUMENT XII = $\zeta^{\text{iv}}$ . |                    |                   |                  |                   |                    |                     |    |
|------------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|-----------------------------------------------------------------|--------------------|-------------------|------------------|-------------------|--------------------|---------------------|----|
|                                                | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |                                                                 | III <sup>s</sup> . | IV <sup>s</sup> . | V <sup>s</sup> . | VI <sup>s</sup> . | VII <sup>s</sup> . | VIII <sup>s</sup> . |    |
| 0                                              | "                  | "                 | "                | "                 | "                  | "                   | 0  | 0                                                               | "                  | "                 | "                | "                 | "                  | "                   | 0  |
| 1                                              | 10,4               | 9,7               | 7,8              | 5,2               | 2,6                | 0,7                 | 30 | 1                                                               | 16,0               | 14,9              | 12,0             | 8,0               | 4,0                | 1,1                 | 30 |
| 2                                              | 10,4               | 9,7               | 7,7              | 5,1               | 2,6                | 0,7                 | 29 | 2                                                               | 16,0               | 14,9              | 11,9             | 7,9               | 3,9                | 1,0                 | 29 |
| 3                                              | 10,4               | 9,6               | 7,6              | 5,0               | 2,5                | 0,6                 | 28 | 3                                                               | 16,0               | 14,8              | 11,7             | 7,7               | 3,8                | 0,9                 | 28 |
| 4                                              | 10,4               | 9,6               | 7,6              | 4,9               | 2,4                | 0,6                 | 27 | 4                                                               | 16,0               | 14,7              | 11,6             | 7,6               | 3,6                | 0,9                 | 27 |
| 5                                              | 10,4               | 9,5               | 7,5              | 4,8               | 2,3                | 0,5                 | 26 | 5                                                               | 16,0               | 14,6              | 11,5             | 7,4               | 3,5                | 0,8                 | 26 |
|                                                | 10,4               | 9,5               | 7,4              | 4,7               | 2,2                | 0,5                 | 25 |                                                                 | 16,0               | 14,6              | 11,4             | 7,3               | 3,4                | 0,8                 | 25 |
| 6                                              | 10,4               | 9,4               | 7,3              | 4,7               | 2,2                | 0,5                 | 24 | 6                                                               | 16,0               | 14,5              | 11,2             | 7,2               | 3,3                | 0,7                 | 24 |
| 7                                              | 10,4               | 9,4               | 7,2              | 4,6               | 2,1                | 0,4                 | 23 | 7                                                               | 15,9               | 14,4              | 11,1             | 7,0               | 3,2                | 0,6                 | 23 |
| 8                                              | 10,3               | 9,3               | 7,2              | 4,5               | 2,0                | 0,4                 | 22 | 8                                                               | 15,9               | 14,3              | 11,0             | 6,9               | 3,1                | 0,6                 | 22 |
| 9                                              | 10,3               | 9,2               | 7,1              | 4,4               | 1,9                | 0,4                 | 21 | 9                                                               | 15,9               | 14,2              | 10,9             | 6,7               | 3,0                | 0,5                 | 21 |
| 10                                             | 10,3               | 9,2               | 7,0              | 4,3               | 1,9                | 0,3                 | 20 | 10                                                              | 15,9               | 14,1              | 10,7             | 6,6               | 2,9                | 0,5                 | 20 |
| 11                                             | 10,3               | 9,1               | 6,9              | 4,2               | 1,8                | 0,3                 | 19 | 11                                                              | 15,8               | 14,0              | 10,6             | 6,5               | 2,8                | 0,4                 | 19 |
| 12                                             | 10,3               | 9,1               | 6,8              | 4,1               | 1,7                | 0,3                 | 18 | 12                                                              | 15,8               | 13,9              | 10,5             | 6,3               | 2,7                | 0,4                 | 18 |
| 13                                             | 10,3               | 9,0               | 6,7              | 4,0               | 1,6                | 0,2                 | 17 | 13                                                              | 15,8               | 13,8              | 10,3             | 6,2               | 2,5                | 0,4                 | 17 |
| 14                                             | 10,2               | 8,9               | 6,6              | 3,9               | 1,6                | 0,2                 | 16 | 14                                                              | 15,8               | 13,8              | 10,2             | 6,0               | 2,4                | 0,3                 | 16 |
| 15                                             | 10,2               | 8,9               | 6,6              | 3,8               | 1,5                | 0,2                 | 15 | 15                                                              | 15,7               | 13,7              | 10,1             | 5,9               | 2,3                | 0,3                 | 15 |
| 16                                             | 10,2               | 8,8               | 6,5              | 3,8               | 1,5                | 0,2                 | 14 | 16                                                              | 15,7               | 13,6              | 9,9              | 5,8               | 2,2                | 0,2                 | 14 |
| 17                                             | 10,2               | 8,8               | 6,4              | 3,7               | 1,4                | 0,1                 | 13 | 17                                                              | 15,6               | 13,5              | 9,8              | 5,7               | 2,2                | 0,2                 | 13 |
| 18                                             | 10,1               | 8,7               | 6,3              | 3,6               | 1,3                | 0,1                 | 12 | 18                                                              | 15,6               | 13,3              | 9,7              | 5,5               | 2,1                | 0,2                 | 12 |
| 19                                             | 10,1               | 8,6               | 6,2              | 3,5               | 1,3                | 0,1                 | 11 | 19                                                              | 15,6               | 13,2              | 9,5              | 5,4               | 2,0                | 0,2                 | 11 |
| 20                                             | 10,1               | 8,5               | 6,1              | 3,4               | 1,2                | 0,1                 | 10 | 20                                                              | 15,5               | 13,1              | 9,4              | 5,3               | 1,9                | 0,1                 | 10 |
| 21                                             | 10,0               | 8,5               | 6,0              | 3,3               | 1,2                | 0,1                 | 9  | 21                                                              | 15,5               | 13,0              | 9,3              | 5,1               | 1,8                | 0,1                 | 9  |
| 22                                             | 10,0               | 8,4               | 5,9              | 3,2               | 1,1                | 0,1                 | 8  | 22                                                              | 15,4               | 12,9              | 9,1              | 5,0               | 1,7                | 0,1                 | 8  |
| 23                                             | 10,0               | 8,3               | 5,8              | 3,2               | 1,0                | 0,0                 | 7  | 23                                                              | 15,4               | 12,8              | 9,0              | 4,9               | 1,6                | 0,1                 | 7  |
| 24                                             | 9,9                | 8,2               | 5,7              | 3,1               | 1,0                | 0,0                 | 6  | 24                                                              | 15,3               | 12,7              | 8,8              | 4,8               | 1,5                | 0,0                 | 6  |
| 25                                             | 9,9                | 8,2               | 5,7              | 3,0               | 0,9                | 0,0                 | 5  | 25                                                              | 15,2               | 12,6              | 8,7              | 4,6               | 1,4                | 0,0                 | 5  |
| 26                                             | 9,9                | 8,1               | 5,6              | 2,9               | 0,9                | 0,0                 | 4  | 26                                                              | 15,2               | 12,5              | 8,6              | 4,5               | 1,4                | 0,0                 | 4  |
| 27                                             | 9,8                | 8,0               | 5,5              | 2,8               | 0,8                | 0,0                 | 3  | 27                                                              | 15,1               | 12,4              | 8,4              | 4,4               | 1,3                | 0,0                 | 3  |
| 28                                             | 9,8                | 7,9               | 5,4              | 2,8               | 0,8                | 0,0                 | 2  | 28                                                              | 15,1               | 12,2              | 8,3              | 4,3               | 1,2                | 0,0                 | 2  |
| 29                                             | 9,7                | 7,8               | 5,3              | 2,7               | 0,7                | 0,0                 | 1  | 29                                                              | 15,0               | 12,1              | 8,1              | 4,1               | 1,1                | 0,0                 | 1  |
| 30                                             | 9,7                | 7,8               | 5,2              | 2,6               | 0,7                | 0,0                 | 0  | 30                                                              | 14,9               | 12,0              | 8,0              | 4,0               | 1,1                | 0,0                 | 0  |
|                                                | II <sup>s</sup> .  | I <sup>s</sup> .  | 0 <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |                                                                 | II <sup>s</sup> .  | I <sup>s</sup> .  | 0 <sup>s</sup> . | XI <sup>s</sup> . | X <sup>s</sup> .   | IX <sup>s</sup> .   |    |



TABLE XXXIX.

Equatorial Parallax.

ARGUMENT XXV.

|    | O <sup>s</sup> .  | Diff. | I <sup>s</sup> . | Diff. | II <sup>s</sup> . | Diff. | III <sup>s</sup> .  | Diff. | IV <sup>s</sup> .  | Diff. | V <sup>s</sup> .  | Diff. |    |
|----|-------------------|-------|------------------|-------|-------------------|-------|---------------------|-------|--------------------|-------|-------------------|-------|----|
| 0  | 59. 6,6           | 0,0   | 58. 36,3         | 2,0   | 57. 17,5          | 3,2   | 55. 39,0            | 3,2   | 54. 10,6           | 2,5   | 53. 11,9          | 1,3   | 30 |
| 1  | 59. 6,6           | 0,1   | 58. 34,3         | 2,0   | 57. 14,3          | 3,1   | 55. 35,8            | 3,2   | 54. 8,1            | 2,5   | 53. 10,6          | 1,3   | 29 |
| 2  | 59. 6,5           | 0,2   | 58. 32,3         | 2,1   | 57. 11,2          | 3,2   | 55. 32,6            | 3,2   | 54. 5,7            | 2,4   | 53. 9,3           | 1,2   | 28 |
| 3  | 59. 6,3           | 0,2   | 58. 30,2         | 2,1   | 57. 8,0           | 3,2   | 55. 29,4            | 3,2   | 54. 3,3            | 2,4   | 53. 8,1           | 1,2   | 27 |
| 4  | 59. 6,1           | 0,3   | 58. 28,1         | 2,2   | 57. 4,8           | 3,2   | 55. 26,2            | 3,2   | 54. 0,9            | 2,4   | 53. 6,9           | 1,2   | 26 |
| 5  | 59. 5,8           | 0,4   | 58. 25,9         | 2,2   | 57. 1,6           | 3,2   | 55. 23,0            | 3,2   | 53. 58,5           | 2,4   | 53. 5,7           | 1,1   | 25 |
| 6  | 59. 5,4           | 0,5   | 58. 23,7         | 2,3   | 56. 58,4          | 3,3   | 55. 19,8            | 3,1   | 53. 56,1           | 2,3   | 53. 4,6           | 1,1   | 24 |
| 7  | 59. 4,9           | 0,5   | 58. 21,4         | 2,3   | 56. 55,1          | 3,3   | 55. 16,7            | 3,2   | 53. 53,8           | 2,3   | 53. 3,5           | 1,0   | 23 |
| 8  | 59. 4,4           | 0,6   | 58. 19,1         | 2,4   | 56. 51,8          | 3,2   | 55. 13,5            | 3,1   | 53. 51,5           | 2,2   | 53. 2,5           | 1,0   | 22 |
| 9  | 59. 3,8           | 0,7   | 58. 16,7         | 2,4   | 56. 48,6          | 3,3   | 55. 10,4            | 3,1   | 53. 49,3           | 2,2   | 53. 1,5           | 0,9   | 21 |
| 10 | 59. 3,1           | 0,7   | 58. 14,3         | 2,5   | 56. 45,3          | 3,3   | 55. 7,3             | 3,1   | 53. 47,1           | 2,1   | 53. 0,6           | 0,9   | 20 |
| 11 | 59. 2,4           | 0,8   | 58. 11,8         | 2,5   | 56. 42,0          | 3,3   | 55. 4,2             | 3,1   | 53. 45,0           | 2,1   | 52. 59,7          | 0,8   | 19 |
| 12 | 59. 1,6           | 0,9   | 58. 9,3          | 2,6   | 56. 38,7          | 3,3   | 55. 1,1             | 3,0   | 53. 42,9           | 2,1   | 52. 58,9          | 0,8   | 18 |
| 13 | 59. 0,7           | 0,9   | 58. 6,7          | 2,6   | 56. 35,4          | 3,3   | 54. 58,1            | 3,0   | 53. 40,8           | 2,0   | 52. 58,1          | 0,7   | 17 |
| 14 | 58. 59,8          | 1,0   | 58. 4,1          | 2,7   | 56. 32,1          | 3,3   | 54. 55,1            | 3,0   | 53. 38,8           | 2,0   | 52. 57,4          | 0,7   | 16 |
| 15 | 58. 58,8          | 1,1   | 58. 1,4          | 2,7   | 56. 28,8          | 3,4   | 54. 52,1            | 3,0   | 53. 36,8           | 1,9   | 52. 56,7          | 0,7   | 15 |
| 16 | 58. 57,7          | 1,1   | 57. 58,7         | 2,7   | 56. 25,4          | 3,3   | 54. 49,1            | 2,9   | 53. 34,9           | 1,9   | 52. 56,0          | 0,6   | 14 |
| 17 | 58. 56,6          | 1,2   | 57. 56,0         | 2,8   | 56. 22,1          | 3,3   | 54. 46,2            | 2,9   | 53. 33,0           | 1,9   | 52. 55,4          | 0,5   | 13 |
| 18 | 58. 55,4          | 1,2   | 57. 53,2         | 2,8   | 56. 18,8          | 3,4   | 54. 43,3            | 2,9   | 53. 31,1           | 1,8   | 52. 54,9          | 0,5   | 12 |
| 19 | 58. 54,2          | 1,3   | 57. 50,4         | 2,8   | 56. 15,4          | 3,3   | 54. 40,4            | 2,9   | 53. 29,3           | 1,8   | 52. 54,4          | 0,5   | 11 |
| 20 | 58. 52,9          | 1,4   | 57. 47,6         | 2,9   | 56. 12,1          | 3,3   | 54. 37,5            | 2,8   | 53. 27,5           | 1,8   | 52. 53,9          | 0,4   | 10 |
| 21 | 58. 51,5          | 1,4   | 57. 44,7         | 2,9   | 56. 8,8           | 3,4   | 54. 34,7            | 2,8   | 53. 25,7           | 1,7   | 52. 53,5          | 0,4   | 9  |
| 22 | 58. 50,1          | 1,5   | 57. 41,8         | 2,9   | 56. 5,4           | 3,3   | 54. 31,9            | 2,8   | 53. 24,0           | 1,7   | 52. 53,1          | 0,4   | 8  |
| 23 | 58. 48,6          | 1,6   | 57. 38,9         | 3,0   | 56. 2,1           | 3,3   | 54. 29,1            | 2,8   | 53. 22,3           | 1,6   | 52. 52,7          | 0,3   | 7  |
| 24 | 58. 47,0          | 1,7   | 57. 35,9         | 3,0   | 55. 58,8          | 3,3   | 54. 26,3            | 2,7   | 53. 20,7           | 1,6   | 52. 52,4          | 0,3   | 6  |
| 25 | 58. 45,3          | 1,7   | 57. 32,9         | 3,0   | 55. 55,5          | 3,3   | 54. 23,6            | 2,6   | 53. 19,1           | 1,5   | 52. 52,1          | 0,2   | 5  |
| 26 | 58. 43,6          | 1,7   | 57. 29,9         | 3,1   | 55. 52,2          | 3,3   | 54. 21,0            | 2,7   | 53. 17,6           | 1,5   | 52. 51,9          | 0,2   | 4  |
| 27 | 58. 41,9          | 1,8   | 57. 26,8         | 3,1   | 55. 48,9          | 3,3   | 54. 18,3            | 2,6   | 53. 16,1           | 1,4   | 52. 51,7          | 0,1   | 3  |
| 28 | 58. 40,1          | 1,9   | 57. 23,7         | 3,1   | 55. 45,6          | 3,3   | 54. 15,7            | 2,6   | 53. 14,7           | 1,4   | 52. 51,6          | 0,0   | 2  |
| 29 | 58. 38,2          | 1,9   | 57. 20,6         | 3,1   | 55. 42,3          | 3,3   | 54. 13,1            | 2,5   | 53. 13,3           | 1,4   | 52. 51,6          | 0,0   | 1  |
| 30 | 58. 36,3          |       | 57. 17,5         |       | 55. 39,0          |       | 54. 10,6            |       | 53. 11,9           |       | 52. 51,6          |       | 0  |
|    | XI <sup>s</sup> . |       | X <sup>s</sup> . |       | IX <sup>s</sup> . |       | VIII <sup>s</sup> . |       | VII <sup>s</sup> . |       | VI <sup>s</sup> . |       |    |



## Equations of the Parallax.

TABLE XL.

ARGUMENT VI. Evection.

|    | Os.               | Is.              | II <sup>s</sup> . | III <sup>s</sup> .  | IV <sup>s</sup> .  | V <sup>s</sup> .  |    |
|----|-------------------|------------------|-------------------|---------------------|--------------------|-------------------|----|
| 0  | 1. 15,2           | 1. 10,1          | 0. 56,1           | 0. 37,3             | 0. 18,8            | 0. 5,5            | 30 |
| 1  | 1. 15,2           | 1. 9,7           | 0. 55,6           | 0. 36,7             | 0. 18,3            | 0. 5,2            | 29 |
| 2  | 1. 15,2           | 1. 9,4           | 0. 55,0           | 0. 36,0             | 0. 17,7            | 0. 4,9            | 28 |
| 3  | 1. 15,2           | 1. 9,0           | 0. 54,4           | 0. 35,4             | 0. 17,2            | 0. 4,6            | 27 |
| 4  | 1. 15,1           | 1. 8,7           | 0. 53,8           | 0. 34,7             | 0. 16,7            | 0. 4,3            | 26 |
| 5  | 1. 15,1           | 1. 8,3           | 0. 53,2           | 0. 34,1             | 0. 16,1            | 0. 4,0            | 25 |
| 6  | 1. 15,0           | 1. 7,9           | 0. 52,6           | 0. 33,4             | 0. 15,6            | 0. 3,7            | 24 |
| 7  | 1. 14,9           | 1. 7,5           | 0. 52,0           | 0. 32,8             | 0. 15,1            | 0. 3,5            | 23 |
| 8  | 1. 14,8           | 1. 7,1           | 0. 51,4           | 0. 32,1             | 0. 14,5            | 0. 3,2            | 22 |
| 9  | 1. 14,7           | 1. 6,7           | 0. 50,8           | 0. 31,5             | 0. 14,0            | 0. 3,0            | 21 |
| 10 | 1. 14,6           | 1. 6,3           | 0. 50,2           | 0. 30,8             | 0. 13,5            | 0. 2,8            | 20 |
| 11 | 1. 14,5           | 1. 5,9           | 0. 49,5           | 0. 30,2             | 0. 13,0            | 0. 2,6            | 19 |
| 12 | 1. 14,3           | 1. 5,4           | 0. 48,9           | 0. 29,5             | 0. 12,5            | 0. 2,4            | 18 |
| 13 | 1. 14,2           | 1. 4,9           | 0. 48,3           | 0. 28,9             | 0. 12,1            | 0. 2,2            | 17 |
| 14 | 1. 14,0           | 1. 4,5           | 0. 47,6           | 0. 28,2             | 0. 11,6            | 0. 2,0            | 16 |
| 15 | 1. 13,9           | 1. 4,0           | 0. 47,0           | 0. 27,6             | 0. 11,2            | 0. 1,9            | 15 |
| 16 | 1. 13,7           | 1. 3,5           | 0. 46,4           | 0. 27,0             | 0. 10,7            | 0. 1,7            | 14 |
| 17 | 1. 13,5           | 1. 3,0           | 0. 45,7           | 0. 26,4             | 0. 10,3            | 0. 1,6            | 13 |
| 18 | 1. 13,3           | 1. 2,5           | 0. 45,1           | 0. 25,8             | 0. 9,9             | 0. 1,4            | 12 |
| 19 | 1. 13,1           | 1. 2,0           | 0. 44,4           | 0. 25,2             | 0. 9,5             | 0. 1,3            | 11 |
| 20 | 1. 12,9           | 1. 1,5           | 0. 43,8           | 0. 24,6             | 0. 9,1             | 0. 1,2            | 10 |
| 21 | 1. 12,6           | 1. 1,0           | 0. 43,1           | 0. 24,0             | 0. 8,7             | 0. 1,1            | 9  |
| 22 | 1. 12,4           | 1. 0,5           | 0. 42,5           | 0. 23,4             | 0. 8,3             | 0. 1,0            | 8  |
| 23 | 1. 12,1           | 1. 0,0           | 0. 41,8           | 0. 22,8             | 0. 7,9             | 0. 0,9            | 7  |
| 24 | 1. 11,9           | 0. 59,4          | 0. 41,2           | 0. 22,2             | 0. 7,6             | 0. 0,8            | 6  |
| 25 | 1. 11,6           | 0. 58,9          | 0. 40,5           | 0. 21,6             | 0. 7,2             | 0. 0,7            | 5  |
| 26 | 1. 11,3           | 0. 58,3          | 0. 39,9           | 0. 21,0             | 0. 6,9             | 0. 0,7            | 4  |
| 27 | 1. 11,0           | 0. 57,8          | 0. 39,2           | 0. 20,5             | 0. 6,5             | 0. 0,6            | 3  |
| 28 | 1. 10,7           | 0. 57,2          | 0. 38,6           | 0. 19,9             | 0. 6,2             | 0. 0,6            | 2  |
| 29 | 1. 10,4           | 0. 56,7          | 0. 37,9           | 0. 19,4             | 0. 5,8             | 0. 0,6            | 1  |
| 30 | 1. 10,1           | 0. 56,1          | 0. 37,3           | 0. 18,8             | 0. 5,5             | 0. 0,6            | 0  |
|    | XI <sup>s</sup> . | X <sup>s</sup> . | IX <sup>s</sup> . | VIII <sup>s</sup> . | VII <sup>s</sup> . | VI <sup>s</sup> . |    |

TABLE XLI.

ARGUMENT XXVI. Variation.

|    | Os.               | I <sup>s</sup> . | II <sup>s</sup> . | III <sup>s</sup> .  | IV <sup>s</sup> .  | V <sup>s</sup> .  |    |
|----|-------------------|------------------|-------------------|---------------------|--------------------|-------------------|----|
| 0  | 52,4              | 39,2             | 13,6              | 1,4                 | 14,6               | 41,0              | 30 |
| 1  | 52,4              | 38,4             | 12,9              | 1,4                 | 15,4               | 41,9              | 29 |
| 2  | 52,3              | 37,6             | 12,1              | 1,5                 | 16,2               | 42,6              | 28 |
| 3  | 52,2              | 36,8             | 11,4              | 1,6                 | 17,0               | 43,4              | 27 |
| 4  | 52,1              | 36,0             | 10,7              | 1,7                 | 17,8               | 44,1              | 26 |
| 5  | 52,0              | 35,1             | 10,0              | 1,9                 | 18,7               | 44,8              | 25 |
| 6  | 51,8              | 34,3             | 9,3               | 2,1                 | 19,5               | 45,5              | 24 |
| 7  | 51,6              | 33,4             | 8,7               | 2,3                 | 20,4               | 46,2              | 23 |
| 8  | 51,4              | 32,5             | 8,1               | 2,5                 | 21,3               | 46,8              | 22 |
| 9  | 51,1              | 31,6             | 7,5               | 2,8                 | 22,2               | 47,4              | 21 |
| 10 | 50,8              | 30,7             | 6,9               | 3,1                 | 23,1               | 48,0              | 20 |
| 11 | 50,5              | 29,9             | 6,4               | 3,4                 | 24,0               | 48,6              | 19 |
| 12 | 50,1              | 29,0             | 5,9               | 3,8                 | 24,9               | 49,2              | 18 |
| 13 | 49,7              | 28,1             | 5,4               | 4,2                 | 25,8               | 49,8              | 17 |
| 14 | 49,3              | 27,2             | 4,9               | 4,6                 | 26,7               | 50,3              | 16 |
| 15 | 48,9              | 26,3             | 4,5               | 5,1                 | 27,7               | 50,8              | 15 |
| 16 | 48,4              | 25,5             | 4,1               | 5,6                 | 28,6               | 51,2              | 14 |
| 17 | 47,9              | 24,6             | 3,7               | 6,1                 | 29,6               | 51,6              | 13 |
| 18 | 47,4              | 23,7             | 3,3               | 6,6                 | 30,5               | 52,0              | 12 |
| 19 | 46,8              | 22,8             | 3,0               | 7,1                 | 31,4               | 52,4              | 11 |
| 20 | 46,2              | 21,9             | 2,7               | 7,7                 | 32,3               | 52,7              | 10 |
| 21 | 45,6              | 21,1             | 2,4               | 8,3                 | 33,2               | 53,0              | 9  |
| 22 | 45,0              | 20,2             | 2,2               | 8,9                 | 34,1               | 53,3              | 8  |
| 23 | 44,4              | 19,4             | 2,0               | 9,6                 | 35,0               | 53,6              | 7  |
| 24 | 43,7              | 18,5             | 1,8               | 10,3                | 35,9               | 53,8              | 6  |
| 25 | 43,0              | 17,6             | 1,7               | 11,0                | 36,8               | 54,0              | 5  |
| 26 | 42,3              | 16,8             | 1,6               | 11,7                | 37,7               | 54,1              | 4  |
| 27 | 41,6              | 16,0             | 1,5               | 12,4                | 38,5               | 54,2              | 3  |
| 28 | 40,8              | 15,2             | 1,5               | 13,1                | 39,4               | 54,3              | 2  |
| 29 | 40,0              | 14,4             | 1,4               | 13,8                | 40,2               | 54,4              | 1  |
| 30 | 39,2              | 13,6             | 1,4               | 14,6                | 41,0               | 54,4              | 0  |
|    | XI <sup>s</sup> . | X <sup>s</sup> . | IX <sup>s</sup> . | VIII <sup>s</sup> . | VII <sup>s</sup> . | VI <sup>s</sup> . |    |



TABLE XLII.

Small Equations of the Parallax.

ARGUMENTS of Longitude.

|                  |    | Equat.<br>I. | Equat.<br>V. | Equat.<br>VII. | Equat.<br>IX. | Equat.<br>X. | Equat.<br>XI. | Equat.<br>XIII. | Equat.<br>XIV. | Equat.<br>XVIII. | Equat.<br>XXVII. |                    |    |
|------------------|----|--------------|--------------|----------------|---------------|--------------|---------------|-----------------|----------------|------------------|------------------|--------------------|----|
| O <sup>s</sup> . | 0° | "            | "            | "              | "             | "            | "             | "               | "              | "                | "                | XII <sup>s</sup> . | 0° |
|                  | 5  | 0,0          | 4,0          | 0,0            | 0,4           | 1,4          | 1,6           | 2,0             | 1,2            | 0,8              | 0,0              |                    | 25 |
|                  | 10 | 0,0          | 3,9          | 0,0            | 0,4           | 1,4          | 1,6           | 2,0             | 1,2            | 0,8              | 0,0              |                    | 20 |
|                  | 15 | 0,0          | 3,8          | 0,0            | 0,4           | 1,4          | 1,6           | 2,0             | 1,2            | 0,8              | 0,0              |                    | 15 |
|                  | 20 | 0,0          | 3,7          | 0,0            | 0,4           | 1,4          | 1,6           | 2,0             | 1,2            | 0,7              | 0,0              |                    | 10 |
|                  | 25 | 0,0          | 3,5          | 0,0            | 0,4           | 1,3          | 1,6           | 1,9             | 1,2            | 0,7              | 0,0              |                    | 5  |
| I.               | 0  | 0,0          | 3,3          | 0,0            | 0,4           | 1,3          | 1,5           | 1,9             | 1,1            | 0,6              | 0,1              | XI.                | 0  |
|                  | 0  | 0,1          | 3,0          | 0,0            | 0,4           | 1,3          | 1,5           | 1,9             | 1,1            | 0,6              | 0,1              |                    |    |
| II.              | 5  | 0,1          | 2,7          | 0,0            | 0,4           | 1,3          | 1,5           | 1,8             | 1,1            | 0,5              | 0,1              | X.                 | 25 |
|                  | 10 | 0,1          | 2,4          | 0,0            | 0,3           | 1,2          | 1,4           | 1,8             | 1,0            | 0,5              | 0,1              |                    | 20 |
|                  | 15 | 0,1          | 2,1          | 0,0            | 0,3           | 1,2          | 1,4           | 1,7             | 1,0            | 0,4              | 0,2              |                    | 15 |
|                  | 20 | 0,1          | 1,7          | 0,1            | 0,3           | 1,2          | 1,3           | 1,6             | 1,0            | 0,3              | 0,2              |                    | 10 |
|                  | 25 | 0,1          | 1,4          | 0,1            | 0,3           | 1,1          | 1,3           | 1,6             | 0,9            | 0,3              | 0,3              |                    | 5  |
|                  | 0  | 0,1          | 1,1          | 0,1            | 0,3           | 1,1          | 1,2           | 1,5             | 0,9            | 0,2              | 0,4              |                    | 0  |
| III.             | 5  | 0,2          | 0,8          | 0,1            | 0,3           | 1,0          | 1,1           | 1,4             | 0,9            | 0,2              | 0,5              | IX.                | 25 |
|                  | 10 | 0,2          | 0,6          | 0,1            | 0,3           | 1,0          | 1,1           | 1,3             | 0,8            | 0,1              | 0,5              |                    | 20 |
|                  | 15 | 0,2          | 0,4          | 0,1            | 0,3           | 0,9          | 1,0           | 1,3             | 0,8            | 0,1              | 0,6              |                    | 15 |
|                  | 20 | 0,2          | 0,3          | 0,1            | 0,2           | 0,9          | 1,0           | 1,2             | 0,7            | 0,0              | 0,6              |                    | 10 |
|                  | 25 | 0,3          | 0,2          | 0,1            | 0,2           | 0,8          | 0,9           | 1,1             | 0,7            | 0,0              | 0,7              |                    | 5  |
|                  | 0  | 0,3          | 0,2          | 0,1            | 0,2           | 0,7          | 0,8           | 1,0             | 0,6            | 0,0              | 0,8              |                    | 0  |
| IV.              | 5  | 0,3          | 0,3          | 0,1            | 0,2           | 0,6          | 0,7           | 0,9             | 0,5            | 0,0              | 0,9              | VIII.              | 25 |
|                  | 10 | 0,4          | 0,4          | 0,1            | 0,2           | 0,5          | 0,6           | 0,8             | 0,4            | 0,0              | 1,0              |                    | 20 |
|                  | 15 | 0,4          | 0,6          | 0,1            | 0,2           | 0,5          | 0,6           | 0,7             | 0,4            | 0,1              | 1,0              |                    | 15 |
|                  | 20 | 0,4          | 0,8          | 0,1            | 0,1           | 0,4          | 0,5           | 0,7             | 0,3            | 0,1              | 1,1              |                    | 10 |
|                  | 25 | 0,4          | 1,0          | 0,1            | 0,1           | 0,4          | 0,5           | 0,6             | 0,3            | 0,1              | 1,1              |                    | 5  |
|                  | 0  | 0,4          | 1,3          | 0,1            | 0,1           | 0,3          | 0,4           | 0,5             | 0,3            | 0,2              | 1,2              |                    | 0  |
| V.               | 5  | 0,5          | 1,6          | 0,1            | 0,1           | 0,3          | 0,3           | 0,4             | 0,2            | 0,3              | 1,3              | VII.               | 25 |
|                  | 10 | 0,5          | 2,0          | 0,1            | 0,1           | 0,2          | 0,3           | 0,4             | 0,2            | 0,3              | 1,4              |                    | 20 |
|                  | 15 | 0,5          | 2,3          | 0,2            | 0,1           | 0,2          | 0,2           | 0,3             | 0,2            | 0,4              | 1,4              |                    | 15 |
|                  | 20 | 0,5          | 2,7          | 0,2            | 0,1           | 0,2          | 0,2           | 0,2             | 0,1            | 0,5              | 1,5              |                    | 10 |
|                  | 25 | 0,5          | 3,1          | 0,2            | 0,0           | 0,1          | 0,1           | 0,2             | 0,1            | 0,5              | 1,5              |                    | 5  |
|                  | 0  | 0,5          | 3,4          | 0,2            | 0,0           | 0,1          | 0,1           | 0,1             | 0,1            | 0,6              | 1,5              |                    | 0  |
| VI.              | 5  | 0,6          | 3,7          | 0,2            | 0,0           | 0,1          | 0,1           | 0,1             | 0,0            | 0,6              | 1,5              | VI.                | 25 |
|                  | 10 | 0,6          | 3,9          | 0,2            | 0,0           | 0,1          | 0,0           | 0,1             | 0,0            | 0,7              | 1,6              |                    | 20 |
|                  | 15 | 0,6          | 4,1          | 0,2            | 0,0           | 0,1          | 0,0           | 0,0             | 0,0            | 0,7              | 1,6              |                    | 15 |
|                  | 20 | 0,6          | 4,2          | 0,2            | 0,0           | 0,1          | 0,0           | 0,0             | 0,0            | 0,8              | 1,6              |                    | 10 |
|                  | 25 | 0,6          | 4,3          | 0,2            | 0,0           | 0,1          | 0,0           | 0,0             | 0,0            | 0,8              | 1,6              |                    | 5  |
|                  | 0  | 0,6          | 4,4          | 0,2            | 0,0           | 0,1          | 0,0           | 0,0             | 0,0            | 0,8              | 1,6              |                    | 0  |
|                  |    | I.           | V.           | VII.           | IX.           | X.           | XI.           | XIII.           | XIV.           | XVIII.           | XXVII.           |                    |    |



TABLE XLIII.

Semi-Diameter of the Moon.

| Equa-<br>torial<br>Parallax. | Moon's<br>Semi-Diam. | Equa-<br>torial<br>Parallax. | Moon's<br>Semi-Diam.                 |
|------------------------------|----------------------|------------------------------|--------------------------------------|
| 53. 0                        | 14. 27,92            | 59. 0                        | 16. 6,17                             |
| 53. 10                       | 14. 30,65            | 59. 10                       | 16. 8,19                             |
| 53. 20                       | 14. 33,38            | 59. 20                       | 16. 11,63                            |
| 53. 30                       | 14. 36,11            | 59. 30                       | 16. 14,36                            |
| 53. 40                       | 14. 38,84            | 59. 40                       | 16. 17,09                            |
| 53. 50                       | 14. 41,57            | 59. 50                       | 16. 19,82                            |
| 54. 0                        | 14. 44,30            | 60. 0                        | 16. 22,55                            |
| 54. 10                       | 14. 47,02            | 60. 10                       | 16. 25,28                            |
| 54. 20                       | 14. 49,75            | 60. 20                       | 16. 28,01                            |
| 54. 30                       | 14. 52,49            | 60. 30                       | 16. 30,74                            |
| 54. 40                       | 14. 55,21            | 60. 40                       | 16. 33,47                            |
| 54. 50                       | 14. 57,94            | 60. 50                       | 16. 36,20                            |
| 55. 0                        | 15. 0,67             | 61. 0                        | 16. 38,93                            |
| 55. 10                       | 15. 3,40             | 61. 10                       | 16. 41,66                            |
| 55. 20                       | 15. 6,13             | 61. 20                       | 16. 44,39                            |
| 55. 30                       | 15. 8,86             | 61. 30                       | 16. 47,11                            |
| 55. 40                       | 15. 11,59            | 61. 40                       | 16. 49,84                            |
| 55. 50                       | 15. 14,32            | 61. 50                       | 16. 52,57                            |
| 56. 0                        | 15. 17,05            | 62. 0                        | 16. 55,30                            |
| 56. 10                       | 15. 19,78            | Seconds.                     | Proportional<br>Parts.               |
| 56. 20                       | 15. 22,51            |                              |                                      |
| 56. 30                       | 15. 25,24            | 1<br>2<br>3<br>4<br>5        | 0,27<br>0,55<br>0,82<br>1,09<br>1,36 |
| 56. 40                       | 15. 27,97            |                              |                                      |
| 56. 50                       | 15. 30,69            |                              |                                      |
| 57. 0                        | 15. 33,42            |                              |                                      |
| 57. 10                       | 15. 36,15            |                              |                                      |
| 57. 20                       | 15. 38,88            | 6<br>7<br>8<br>9<br>10       | 1,64<br>1,91<br>2,18<br>2,46<br>2,73 |
| 57. 30                       | 15. 41,61            |                              |                                      |
| 57. 40                       | 15. 44,34            |                              |                                      |
| 57. 50                       | 15. 47, 7            |                              |                                      |
| 58. 0                        | 15. 49,80            |                              |                                      |
| 58. 10                       | 15. 52,53            |                              |                                      |
| 58. 20                       | 15. 55,26            |                              |                                      |
| 58. 30                       | 15. 57,99            |                              |                                      |
| 58. 40                       | 16. 0,71             |                              |                                      |
| 58. 50                       | 16. 3,44             |                              |                                      |
| 59. 0                        | 16. 6,17             |                              |                                      |

TABLE XLIV.

Augmentation of the Semi-Diameter.

| Appar.<br>Alt. | Zenith<br>Dist. | Semi-Diameter. |         |          |         |          |         |
|----------------|-----------------|----------------|---------|----------|---------|----------|---------|
|                |                 | 14'. 30"       | 15'. 0" | 15'. 30" | 16'. 0" | 16'. 30" | 17'. 0" |
| 0              | 90              | 0,00           | 0,00    | 0,00     | 0,00    | 0,00     | 0,00    |
| 3              | 87              | 0,71           | 0,75    | 0,80     | 0,86    | 0,92     | 0,97    |
| 6              | 84              | 1,41           | 1,50    | 1,60     | 1,71    | 1,83     | 1,94    |
| 9              | 81              | 2,11           | 2,25    | 2,40     | 2,56    | 2,73     | 2,90    |
| 12             | 78              | 2,81           | 3,00    | 3,20     | 3,41    | 3,63     | 3,86    |
| 15             | 75              | 3,50           | 3,74    | 3,99     | 4,25    | 4,52     | 4,80    |
| 18             | 72              | 4,17           | 4,46    | 4,76     | 5,07    | 5,39     | 5,73    |
| 21             | 69              | 4,84           | 5,18    | 5,52     | 5,89    | 6,26     | 6,65    |
| 24             | 66              | 5,49           | 5,88    | 6,27     | 6,68    | 7,11     | 7,54    |
| 27             | 63              | 6,13           | 6,56    | 7,00     | 7,46    | 7,93     | 8,42    |
| 30             | 60              | 6,75           | 7,23    | 7,71     | 8,22    | 8,74     | 9,28    |
| 33             | 57              | 7,35           | 7,88    | 8,40     | 8,96    | 9,52     | 10,12   |
| 36             | 54              | 7,93           | 8,50    | 9,07     | 9,67    | 10,28    | 10,92   |
| 39             | 51              | 8,49           | 9,10    | 9,72     | 10,36   | 11,02    | 11,66   |
| 42             | 48              | 9,03           | 9,68    | 10,34    | 11,02   | 11,72    | 12,44   |
| 45             | 45              | 9,55           | 10,23   | 10,93    | 11,65   | 12,39    | 13,15   |
| 48             | 42              | 10,05          | 10,76   | 11,49    | 12,25   | 13,03    | 13,83   |
| 51             | 39              | 10,52          | 11,26   | 12,02    | 12,81   | 13,63    | 14,46   |
| 54             | 36              | 10,95          | 11,72   | 12,52    | 13,34   | 14,19    | 15,06   |
| 57             | 33              | 11,35          | 12,15   | 12,98    | 13,83   | 14,72    | 15,62   |
| 60             | 30              | 11,72          | 12,55   | 13,40    | 14,29   | 15,20    | 16,13   |
| 63             | 27              | 12,06          | 12,91   | 13,79    | 14,70   | 15,64    | 16,60   |
| 66             | 24              | 12,37          | 13,24   | 14,14    | 15,08   | 16,04    | 17,03   |
| 69             | 21              | 12,64          | 13,53   | 14,46    | 15,41   | 16,39    | 17,40   |
| 72             | 18              | 12,88          | 13,79   | 14,73    | 15,70   | 16,70    | 17,73   |
| 75             | 15              | 13,08          | 14,01   | 14,96    | 15,95   | 16,96    | 18,01   |
| 78             | 12              | 13,24          | 14,18   | 15,15    | 16,15   | 17,18    | 18,24   |
| 81             | 9               | 13,37          | 14,32   | 15,30    | 16,31   | 17,35    | 18,42   |
| 84             | 6               | 13,46          | 14,42   | 15,41    | 16,42   | 17,47    | 18,55   |
| 87             | 3               | 13,52          | 14,48   | 15,47    | 16,49   | 17,54    | 18,62   |
| 90             | 0               | 13,54          | 14,50   | 15,49    | 16,51   | 17,57    | 18,65   |



TABLE XLV.

Logarithms of the Radii of the Earth for  $\frac{1}{300}$  and  $\frac{1}{330}$  of Flatness.

| Lat. | Ratio of the Axes. |            |           |            | Lat. | Ratio of the Axes. |            |           |            |
|------|--------------------|------------|-----------|------------|------|--------------------|------------|-----------|------------|
|      | 299 : 300          | Diff.<br>— | 329 : 330 | Diff.<br>— |      | 299 : 300          | Diff.<br>+ | 329 : 330 | Diff.<br>+ |
| 0    | 0.0000000          | 5          | 0.0000000 | 5          | 45   | 9.9992786          | 253        | 9.9993440 | 230        |
| 1    | 9.9999995          | 13         | 9.9999995 | 12         | 46   | 9.9992533          | 253        | 9.9993210 | 230        |
| 2    | 9.9999982          | 22         | 9.9999983 | 19         | 47   | 9.9992280          | 252        | 9.9992980 | 229        |
| 3    | 9.9999960          | 30         | 9.9999964 | 28         | 48   | 9.9992028          | 252        | 9.9992751 | 229        |
| 4    | 9.9999930          | 40         | 9.9999936 | 36         | 49   | 9.9991776          | 251        | 9.9992522 | 227        |
| 5    | 9.9999890          | 47         | 9.9999900 | 43         | 50   | 9.9991525          | 248        | 9.9992295 | 226        |
| 6    | 9.9999843          | 57         | 9.9999857 | 51         | 51   | 9.9991277          | 247        | 9.9992069 | 225        |
| 7    | 9.9999786          | 65         | 9.9999806 | 59         | 52   | 9.9991030          | 245        | 9.9991844 | 223        |
| 8    | 9.9999721          | 73         | 9.9999747 | 67         | 53   | 9.9990785          | 243        | 9.9991621 | 220        |
| 9    | 9.9999648          | 82         | 9.9999630 | 74         | 54   | 9.9990542          | 240        | 9.9991401 | 218        |
| 10   | 9.9999566          | 89         | 9.9999606 | 82         | 55   | 9.9990302          | 237        | 9.9991183 | 216        |
| 11   | 9.9999477          | 98         | 9.9999524 | 89         | 56   | 9.9990065          | 234        | 9.9990967 | 212        |
| 12   | 9.9999379          | 106        | 9.9999435 | 97         | 57   | 9.9989831          | 231        | 9.9990755 | 210        |
| 13   | 9.9999273          | 115        | 9.9999338 | 103        | 58   | 9.9989600          | 226        | 9.9990545 | 205        |
| 14   | 9.9999158          | 121        | 9.9999235 | 111        | 59   | 9.9989374          | 223        | 9.9990340 | 202        |
| 15   | 9.9999037          | 129        | 9.9999124 | 117        | 60   | 9.9989151          | 219        | 9.9990138 | 198        |
| 16   | 9.9998908          | 137        | 9.9999007 | 125        | 61   | 9.9988932          | 212        | 9.9989940 | 195        |
| 17   | 9.9998771          | 144        | 9.9998882 | 131        | 62   | 9.9988720          | 208        | 9.9989745 | 189        |
| 18   | 9.9998627          | 151        | 9.9998751 | 137        | 63   | 9.9988512          | 204        | 9.9989556 | 185        |
| 19   | 9.9998476          | 158        | 9.9998614 | 144        | 64   | 9.9988308          | 197        | 9.9989371 | 179        |
| 20   | 9.9998318          | 165        | 9.9998470 | 150        | 65   | 9.9988111          | 193        | 9.9989192 | 175        |
| 21   | 9.9998153          | 170        | 9.9998320 | 156        | 66   | 9.9987918          | 186        | 9.9989017 | 170        |
| 22   | 9.9997983          | 178        | 9.9998164 | 161        | 67   | 9.9987732          | 180        | 9.9988847 | 163        |
| 23   | 9.9997805          | 184        | 9.9998003 | 167        | 68   | 9.9987552          | 174        | 9.9988684 | 158        |
| 24   | 9.9997621          | 190        | 9.9997836 | 173        | 69   | 9.9987378          | 168        | 9.9988526 | 153        |
| 25   | 9.9997431          | 195        | 9.9997663 | 178        | 70   | 9.9987210          | 160        | 9.9988373 | 145        |
| 26   | 9.9997236          | 201        | 9.9997485 | 182        | 71   | 9.9987050          | 154        | 9.9988228 | 139        |
| 27   | 9.9997035          | 206        | 9.9997303 | 188        | 72   | 9.9986896          | 146        | 9.9988089 | 133        |
| 28   | 9.9996829          | 211        | 9.9997115 | 192        | 73   | 9.9986750          | 139        | 9.9987956 | 127        |
| 29   | 9.9996618          | 216        | 9.9996923 | 196        | 74   | 9.9986611          | 132        | 9.9987829 | 119        |
| 30   | 9.9996402          | 221        | 9.9996727 | 200        | 75   | 9.9986479          | 123        | 9.9987710 | 112        |
| 31   | 9.9996181          | 224        | 9.9996527 | 204        | 76   | 9.9986356          | 116        | 9.9987598 | 105        |
| 32   | 9.9995957          | 229        | 9.9996323 | 208        | 77   | 9.9986240          | 109        | 9.9987493 | 98         |
| 33   | 9.9995728          | 232        | 9.9996115 | 211        | 78   | 9.9986131          | 100        | 9.9987395 | 92         |
| 34   | 9.9995496          | 235        | 9.9995904 | 214        | 79   | 9.9986031          | 91         | 9.9987303 | 83         |
| 35   | 9.9995261          | 238        | 9.9995690 | 217        | 80   | 9.9985940          | 83         | 9.9987220 | 75         |
| 36   | 9.9995023          | 242        | 9.9995473 | 219        | 81   | 9.9985857          | 75         | 9.9987145 | 68         |
| 37   | 9.9994781          | 244        | 9.9995254 | 222        | 82   | 9.9985782          | 66         | 9.9987077 | 60         |
| 38   | 9.9994537          | 246        | 9.9995032 | 223        | 83   | 9.9985716          | 57         | 9.9987017 | 52         |
| 39   | 9.9994291          | 247        | 9.9994809 | 225        | 84   | 9.9985659          | 49         | 9.9986965 | 45         |
| 40   | 9.9994044          | 250        | 9.9994584 | 227        | 85   | 9.9985610          | 40         | 9.9986920 | 36         |
| 41   | 9.9993794          | 251        | 9.9994357 | 228        | 86   | 9.9985570          | 31         | 9.9986884 | 28         |
| 42   | 9.9993543          | 252        | 9.9994129 | 229        | 87   | 9.9985539          | 22         | 9.9986856 | 19         |
| 43   | 9.9993291          | 253        | 9.9993900 | 230        | 88   | 9.9985517          | 13         | 9.9986837 | 12         |
| 44   | 9.9993038          | 252        | 9.9993670 | 230        | 89   | 9.9985504          | 5          | 9.9986825 | 5          |
| 45   | 9.9992786          |            | 9.9993440 |            | 90   | 9.9985499          |            | 9.9986820 |            |



TABLE XLVI.

Angles of the Vertical with the Radius.

| Lat. | Ratio of the Axes. |            |           |            | Lat. | Ratio of the Axes. |            |           |            |
|------|--------------------|------------|-----------|------------|------|--------------------|------------|-----------|------------|
|      | 299 : 300          | Diff.<br>+ | 329 : 330 | Diff.<br>+ |      | 299 : 300          | Diff.<br>— | 329 : 330 | Diff.<br>— |
| 0    | 0. 0.0             | 24.0       | 0. 0.0    | 21.8       | 45   | 11.28.7            | 0.3        | 10.26.0   | 0.3        |
| 1    | 0.24.0             | 23.9       | 0.21.8    | 21.7       | 46   | 11.28.4            | 1.1        | 10.25.7   | 1.1        |
| 2    | 0.47.9             | 23.9       | 0.43.5    | 21.7       | 47   | 11.27.3            | 2.1        | 10.24.6   | 1.9        |
| 3    | 1.11.8             | 23.7       | 1. 5.2    | 21.7       | 48   | 11.25.2            | 2.9        | 10.22.7   | 2.6        |
| 4    | 1.35.5             | 23.7       | 1.26.9    | 21.5       | 49   | 11.22.3            | 3.7        | 10.20.1   | 3.3        |
| 5    | 1.59.2             | 23.5       | 1.48.4    | 21.4       | 50   | 11.18.6            | 4.5        | 10.16.8   | 4.1        |
| 6    | 2.22.7             | 23.4       | 2. 9.8    | 21.2       | 51   | 11.14.1            | 5.3        | 10.12.7   | 4.9        |
| 7    | 2.46.1             | 23.1       | 2.31.0    | 21.0       | 52   | 11. 8.8            | 6.2        | 10. 7.8   | 5.6        |
| 8    | 3. 9.2             | 22.9       | 2.52.0    | 20.9       | 53   | 11. 2.6            | 6.9        | 10. 2.2   | 6.3        |
| 9    | 3.32.1             | 22.7       | 3.12.9    | 20.6       | 54   | 10.55.7            | 7.8        | 9.55.9    | 7.1        |
| 10   | 3.54.8             | 22.4       | 3.33.5    | 20.3       | 55   | 10.47.9            | 8.5        | 9.48.8    | 7.8        |
| 11   | 4.17.2             | 22.1       | 3.53.8    | 20.1       | 56   | 10.39.4            | 9.4        | 9.41.0    | 8.4        |
| 12   | 4.39.3             | 21.7       | 4.13.9    | 19.8       | 57   | 10.30.0            | 10.1       | 9.32.6    | 9.2        |
| 13   | 5. 1.0             | 21.4       | 4.53.7    | 19.4       | 58   | 10.19.9            | 10.9       | 9.23.4    | 10.0       |
| 14   | 5.22.4             | 21.0       | 4.53.1    | 19.1       | 59   | 10. 9.0            | 11.6       | 9.13.4    | 10.6       |
| 15   | 5.43.4             | 20.5       | 5.12.2    | 18.7       | 60   | 9.57.4             | 12.3       | 9. 2.8    | 11.2       |
| 16   | 6. 3.9             | 20.2       | 5.30.9    | 18.3       | 61   | 9.45.1             | 13.1       | 8.51.6    | 11.8       |
| 17   | 6.24.1             | 19.6       | 5.49.2    | 17.8       | 62   | 9.32.0             | 13.7       | 8.39.8    | 12.5       |
| 18   | 6.43.7             | 19.2       | 6. 7.0    | 17.5       | 63   | 9.18.3             | 14.5       | 8.27.3    | 13.1       |
| 19   | 7. 2.9             | 18.7       | 6.24.5    | 16.9       | 64   | 9. 3.8             | 15.1       | 8.14.2    | 13.8       |
| 20   | 7.21.6             | 18.1       | 6.41.4    | 16.5       | 65   | 8.48.7             | 15.8       | 8. 0.4    | 14.3       |
| 21   | 7.39.7             | 17.6       | 6.57.9    | 16.0       | 66   | 8.32.9             | 16.3       | 7.46.1    | 14.9       |
| 22   | 7.57.3             | 16.9       | 7.13.9    | 15.4       | 67   | 8.16.6             | 17.0       | 7.31.2    | 15.4       |
| 23   | 8.14.2             | 16.5       | 7.29.3    | 14.9       | 68   | 7.59.6             | 17.6       | 7.15.8    | 16.0       |
| 24   | 8.30.7             | 15.8       | 7.44.2    | 14.4       | 69   | 7.42.0             | 18.2       | 6.59.8    | 16.5       |
| 25   | 8.46.5             | 15.1       | 7.58.6    | 13.8       | 70   | 7.23.8             | 18.7       | 6.43.3    | 17.0       |
| 26   | 9. 1.6             | 14.5       | 8.12.4    | 13.1       | 71   | 7. 5.1             | 19.2       | 6.26.3    | 17.4       |
| 27   | 9.16.1             | 13.8       | 8.25.5    | 12.6       | 72   | 6.45.9             | 19.7       | 6. 8.9    | 18.0       |
| 28   | 9.29.9             | 13.1       | 8.38.1    | 11.9       | 73   | 6.26.2             | 20.2       | 5.50.9    | 18.3       |
| 29   | 9.43.0             | 12.4       | 8.50.0    | 11.3       | 74   | 6. 6.0             | 20.6       | 5.32.6    | 18.8       |
| 30   | 9.55.4             | 11.8       | 9. 1.3    | 10.6       | 75   | 5.45.4             | 21.1       | 5.13.8    | 19.2       |
| 31   | 10. 7.2            | 10.9       | 9.11.9    | 10.0       | 76   | 5.24.3             | 21.5       | 4.54.6    | 19.5       |
| 32   | 10.18.1            | 10.2       | 9.21.9    | 9.2        | 77   | 5. 2.8             | 21.8       | 4.35.1    | 19.8       |
| 33   | 10.28.3            | 9.5        | 9.31.1    | 8.6        | 78   | 4.41.0             | 22.2       | 4.15.3    | 20.1       |
| 34   | 10.37.8            | 8.6        | 9.39.7    | 7.9        | 79   | 4.18.8             | 22.5       | 3.55.2    | 20.5       |
| 35   | 10.46.4            | 7.9        | 9.47.6    | 7.2        | 80   | 3.56.3             | 22.8       | 3.34.7    | 20.7       |
| 36   | 10.54.3            | 7.1        | 9.54.8    | 6.4        | 81   | 3.33.5             | 23.1       | 3.14.0    | 21.0       |
| 37   | 11. 1.4            | 6.3        | 10. 1.2   | 5.7        | 82   | 3.10.4             | 23.2       | 2.53.0    | 21.1       |
| 38   | 11. 7.7            | 5.5        | 10. 6.9   | 5.0        | 83   | 2.47.2             | 23.5       | 2.31.9    | 21.4       |
| 39   | 11.13.2            | 4.7        | 10.11.9   | 4.2        | 84   | 2.23.7             | 23.7       | 2.10.5    | 21.5       |
| 40   | 11.17.9            | 3.8        | 10.16.1   | 3.5        | 85   | 2. 0.0             | 23.8       | 1.49.0    | 21.6       |
| 41   | 11.21.7            | 3.0        | 10.19.6   | 2.8        | 86   | 1.36.2             | 23.9       | 1.27.4    | 21.8       |
| 42   | 11.24.7            | 2.2        | 10.22.4   | 1.9        | 87   | 1.12.3             | 24.1       | 1. 5.6    | 21.8       |
| 43   | 11.26.9            | 1.3        | 10.24.3   | 1.2        | 88   | 0.48.2             | 24.1       | 0.43.8    | 21.9       |
| 44   | 11.28.2            | 0.5        | 10.25.5   | 0.5        | 89   | 0.24.1             | 24.1       | 0.21.9    | 21.9       |
| 45   | 11.28.7            |            | 10.26.0   |            | 90   | 0. 0.0             |            | 0. 0.0    |            |



TABLE XLVII.

Horary Motion in Longitude.

ARGUMENTS of Longitude.

|      |    | I.    | II.   | III.  | IV.   | V.    | VII.  | VIII. | IX.   | X.    | XI.   |       |    |
|------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| Os.  | 0° | 0",03 | 0",22 | 0",16 | 0",00 | 0",04 | 0",03 | 0",04 | 0",59 | 1",99 | 2",60 | XIIs. | 0° |
|      | 5  | 0,03  | 0,22  | 0,16  | 0,01  | 0,04  | 0,03  | 0,04  | 0,59  | 1,99  | 2,60  |       | 25 |
|      | 10 | 0,03  | 0,22  | 0,16  | 0,01  | 0,05  | 0,05  | 0,04  | 0,59  | 1,98  | 2,58  |       | 20 |
|      | 15 | 0,04  | 0,22  | 0,16  | 0,03  | 0,05  | 0,08  | 0,04  | 0,58  | 1,96  | 2,56  |       | 15 |
|      | 20 | 0,05  | 0,21  | 0,15  | 0,05  | 0,06  | 0,12  | 0,04  | 0,57  | 1,93  | 2,52  |       | 10 |
|      | 25 | 0,07  | 0,21  | 0,15  | 0,07  | 0,06  | 0,17  | 0,04  | 0,56  | 1,90  | 2,48  |       | 5  |
| I.   | 0  | 0,09  | 0,20  | 0,15  | 0,10  | 0,07  | 0,24  | 0,04  | 0,55  | 1,86  | 2,43  | XI.   | 0  |
|      | 5  | 0,11  | 0,20  | 0,14  | 0,12  | 0,09  | 0,31  | 0,04  | 0,54  | 1,81  | 2,37  |       | 25 |
|      | 10 | 0,13  | 0,19  | 0,13  | 0,15  | 0,10  | 0,39  | 0,04  | 0,52  | 1,76  | 2,30  |       | 20 |
|      | 15 | 0,16  | 0,19  | 0,12  | 0,19  | 0,11  | 0,49  | 0,04  | 0,51  | 1,70  | 2,22  |       | 15 |
|      | 20 | 0,19  | 0,18  | 0,11  | 0,22  | 0,12  | 0,59  | 0,03  | 0,49  | 1,64  | 2,14  |       | 10 |
|      | 25 | 0,22  | 0,17  | 0,10  | 0,25  | 0,13  | 0,70  | 0,03  | 0,47  | 1,57  | 2,05  |       | 5  |
| II.  | 0  | 0,26  | 0,17  | 0,09  | 0,28  | 0,14  | 0,82  | 0,03  | 0,45  | 1,50  | 1,95  | X.    | 0  |
|      | 5  | 0,29  | 0,16  | 0,08  | 0,31  | 0,15  | 0,94  | 0,03  | 0,42  | 1,42  | 1,85  |       | 25 |
|      | 10 | 0,32  | 0,15  | 0,07  | 0,33  | 0,16  | 1,06  | 0,03  | 0,40  | 1,34  | 1,74  |       | 20 |
|      | 15 | 0,37  | 0,14  | 0,06  | 0,35  | 0,17  | 1,19  | 0,03  | 0,38  | 1,26  | 1,64  |       | 15 |
|      | 20 | 0,41  | 0,13  | 0,05  | 0,37  | 0,17  | 1,33  | 0,02  | 0,35  | 1,17  | 1,53  |       | 10 |
|      | 25 | 0,45  | 0,12  | 0,05  | 0,38  | 0,17  | 1,46  | 0,02  | 0,33  | 1,09  | 1,41  |       | 5  |
| III. | 0  | 0,49  | 0,11  | 0,04  | 0,38  | 0,17  | 1,60  | 0,02  | 0,30  | 1,00  | 1,30  | IX.   | 0  |
|      | 5  | 0,53  | 0,10  | 0,04  | 0,39  | 0,17  | 1,74  | 0,02  | 0,27  | 0,91  | 1,18  |       | 25 |
|      | 10 | 0,58  | 0, 9  | 0,03  | 0,39  | 0,17  | 1,87  | 0,02  | 0,25  | 0,83  | 1,07  |       | 20 |
|      | 15 | 0,62  | 0, 8  | 0,03  | 0,38  | 0,16  | 2,01  | 0,01  | 0,22  | 0,74  | 0,96  |       | 15 |
|      | 20 | 0,66  | 0, 7  | 0,03  | 0,36  | 0,15  | 2,14  | 0,01  | 0,20  | 0,66  | 0,86  |       | 10 |
|      | 25 | 0,70  | 0, 6  | 0,03  | 0,35  | 0,14  | 2,26  | 0,01  | 0,18  | 0,58  | 0,75  |       | 5  |
| IV.  | 0  | 0,74  | 0, 5  | 0,03  | 0,33  | 0,13  | 2,39  | 0,01  | 0,15  | 0,50  | 0,65  | VIII. | 0  |
|      | 5  | 0,77  | 0, 5  | 0,04  | 0,31  | 0,12  | 2,50  | 0,01  | 0,13  | 0,43  | 0,55  |       | 25 |
|      | 10 | 0,81  | 0, 4  | 0,04  | 0,28  | 0,10  | 2,61  | 0,01  | 0,11  | 0,36  | 0,46  |       | 20 |
|      | 15 | 0,84  | 0, 3  | 0,05  | 0,25  | 0,09  | 2,71  | 0,00  | 0,09  | 0,30  | 0,38  |       | 15 |
|      | 20 | 0,87  | 0, 3  | 0,05  | 0,23  | 0,08  | 2,81  | 0,00  | 0,08  | 0,24  | 0,30  |       | 10 |
|      | 25 | 0,90  | 0, 2  | 0,06  | 0,20  | 0,06  | 2,89  | 0,00  | 0,06  | 0,19  | 0,23  |       | 5  |
| V.   | 0  | 0,92  | 0, 2  | 0,06  | 0,18  | 0,05  | 2,96  | 0,00  | 0,05  | 0,15  | 0,17  | VII.  | 0  |
|      | 5  | 0,94  | 0, 1  | 0,07  | 0,16  | 0,04  | 3,03  | 0,00  | 0,04  | 0,12  | 0,12  |       | 25 |
|      | 10 | 0,96  | 0, 1  | 0,07  | 0,14  | 0,03  | 3,08  | 0,00  | 0,03  | 0,08  | 0,08  |       | 20 |
|      | 15 | 0,97  | 0, 0  | 0,07  | 0,12  | 0,02  | 3,12  | 0,00  | 0,02  | 0,04  | 0,04  |       | 15 |
|      | 20 | 0,98  | 0, 0  | 0,08  | 0,11  | 0,02  | 3,15  | 0,00  | 0,01  | 0,02  | 0,02  |       | 10 |
|      | 25 | 0,99  | 0, 0  | 0,08  | 0,10  | 0,01  | 3,17  | 0,00  | 0,01  | 0,01  | 0,00  |       | 5  |
| VI.  | 0  | 0,99  | 0, 0  | 0,08  | 0,10  | 0,01  | 3,17  | 0,00  | 0,01  | 0,01  | 0,00  | VI.   | 0  |
|      |    | I.    | II.   | III.  | IV.   | V.    | VII.  | VIII. | IX.   | X.    | XI.   |       |    |



## LUNAR TABLES.

## Continuation of TABLE XLVII.

Horary Motion in Longitude.

ARGUMENTS of Longitude.

|                  |    | XIII. | XIV.  | XV.   | XVI.  | XVIII. | XX.   | XXIII. | XXIV. | XXV+I. |                    |    |
|------------------|----|-------|-------|-------|-------|--------|-------|--------|-------|--------|--------------------|----|
| O <sup>s</sup> . | 0° | 2",08 | 0",49 | 0",16 | 0",06 | 0",01  | 0",02 | 0",00  | 0",00 | 0",75  | XII <sup>s</sup> . | 0° |
|                  | 5  | 2,07  | 0,49  | 0,16  | 0,06  | 0,01   | 0,03  | 0,00   | 0,00  | 0,75   |                    | 25 |
|                  | 10 | 2,06  | 0,49  | 0,16  | 0,06  | 0,01   | 0,03  | 0,00   | 0,00  | 0,75   |                    | 20 |
|                  | 15 | 2,04  | 0,48  | 0,16  | 0,06  | 0,02   | 0,03  | 0,01   | 0,00  | 0,75   |                    | 15 |
|                  | 20 | 2,01  | 0,48  | 0,16  | 0,06  | 0,03   | 0,04  | 0,01   | 0,00  | 0,75   |                    | 10 |
|                  | 25 | 1,98  | 0,47  | 0,15  | 0,06  | 0,04   | 0,05  | 0,01   | 0,01  | 0,75   |                    | 5  |
| I.               | 0  | 1,94  | 0,46  | 0,15  | 0,06  | 0,05   | 0,06  | 0,01   | 0,01  | 0,75   | XI.                | 0  |
|                  | 5  | 1,89  | 0,45  | 0,15  | 0,06  | 0,07   | 0,07  | 0,02   | 0,01  | 0,76   |                    | 25 |
|                  | 10 | 1,83  | 0,43  | 0,15  | 0,06  | 0,08   | 0,09  | 0,02   | 0,02  | 0,76   |                    | 20 |
|                  | 15 | 1,77  | 0,42  | 0,14  | 0,05  | 0,10   | 0,11  | 0,03   | 0,02  | 0,76   |                    | 15 |
|                  | 20 | 1,71  | 0,41  | 0,14  | 0,05  | 0,12   | 0,12  | 0,03   | 0,02  | 0,77   |                    | 10 |
|                  | 25 | 1,61  | 0,39  | 0,13  | 0,05  | 0,13   | 0,14  | 0,04   | 0,03  | 0,77   |                    | 5  |
| II.              | 0  | 1,56  | 0,37  | 0,13  | 0,05  | 0,15   | 0,16  | 0,04   | 0,03  | 0,77   | X.                 | 0  |
|                  | 5  | 1,48  | 0,35  | 0,13  | 0,04  | 0,16   | 0,18  | 0,05   | 0,04  | 0,77   |                    | 25 |
|                  | 10 | 1,39  | 0,33  | 0,12  | 0,04  | 0,17   | 0,21  | 0,06   | 0,05  | 0,78   |                    | 20 |
|                  | 15 | 1,31  | 0,31  | 0,12  | 0,04  | 0,18   | 0,23  | 0,06   | 0,05  | 0,78   |                    | 15 |
|                  | 20 | 1,22  | 0,29  | 0,11  | 0,04  | 0,19   | 0,25  | 0,07   | 0,06  | 0,79   |                    | 10 |
|                  | 25 | 1,13  | 0,27  | 0,11  | 0,03  | 0,19   | 0,28  | 0,07   | 0,06  | 0,79   |                    | 5  |
| III.             | 0  | 1,04  | 0,25  | 0,10  | 0,03  | 0,19   | 0,30  | 0,08   | 0,07  | 0,80   | IX.                | 0  |
|                  | 5  | 0,95  | 0,23  | 0,09  | 0,03  | 0,19   | 0,32  | 0,09   | 0,08  | 0,81   |                    | 25 |
|                  | 10 | 0,86  | 0,21  | 0,09  | 0,02  | 0,19   | 0,35  | 0,09   | 0,08  | 0,81   |                    | 20 |
|                  | 15 | 0,77  | 0,19  | 0,08  | 0,02  | 0,18   | 0,37  | 0,10   | 0,09  | 0,82   |                    | 15 |
|                  | 20 | 0,69  | 0,17  | 0,08  | 0,02  | 0,17   | 0,39  | 0,10   | 0,09  | 0,82   |                    | 10 |
|                  | 25 | 0,60  | 0,15  | 0,07  | 0,02  | 0,16   | 0,41  | 0,11   | 0,10  | 0,83   |                    | 5  |
| IV.              | 0  | 0,52  | 0,13  | 0,07  | 0,01  | 0,15   | 0,43  | 0,12   | 0,11  | 0,83   | VIII.              | 0  |
|                  | 5  | 0,45  | 0,11  | 0,07  | 0,01  | 0,13   | 0,44  | 0,12   | 0,11  | 0,83   |                    | 25 |
|                  | 10 | 0,37  | 0,09  | 0,06  | 0,01  | 0,12   | 0,46  | 0,13   | 0,12  | 0,83   |                    | 20 |
|                  | 15 | 0,31  | 0,08  | 0,06  | 0,01  | 0,10   | 0,48  | 0,13   | 0,12  | 0,84   |                    | 15 |
|                  | 20 | 0,25  | 0,07  | 0,05  | 0,00  | 0,08   | 0,49  | 0,14   | 0,12  | 0,84   |                    | 10 |
|                  | 25 | 0,19  | 0,05  | 0,05  | 0,00  | 0,07   | 0,51  | 0,14   | 0,13  | 0,84   |                    | 5  |
| V.               | 0  | 0,14  | 0,04  | 0,05  | 0,00  | 0,05   | 0,53  | 0,15   | 0,13  | 0,85   | VII.               | 0  |
|                  | 5  | 0,10  | 0,03  | 0,05  | 0,00  | 0,04   | 0,54  | 0,15   | 0,13  | 0,85   |                    | 25 |
|                  | 10 | 0,07  | 0,02  | 0,04  | 0,00  | 0,03   | 0,55  | 0,15   | 0,14  | 0,85   |                    | 20 |
|                  | 15 | 0,04  | 0,02  | 0,04  | 0,00  | 0,02   | 0,56  | 0,15   | 0,14  | 0,85   |                    | 15 |
|                  | 20 | 0,02  | 0,01  | 0,04  | 0,00  | 0,01   | 0,57  | 0,15   | 0,14  | 0,85   |                    | 10 |
|                  | 25 | 0,01  | 0,01  | 0,04  | 0,00  | 0,01   | 0,57  | 0,16   | 0,14  | 0,85   |                    | 5  |
| VI.              | 0  | 0,00  | 0,01  | 0,04  | 0,00  | 0,01   | 0,58  | 0,16   | 0,14  | 0,85   | VI.                | 0  |
|                  |    | XIII. | XIV.  | XV.   | XVI.  | XVIII. | XX.   | XXIII. | XXIV. | XXV+I. |                    |    |



TABLE XLV

Continuation of the Horary Motion in Longitude.

Equation VI. Argument VI of Longitude.

|    | O <sup>s</sup> .  | Diff. | I <sup>s</sup> . | Diff. | II <sup>s</sup> . | Diff. | III <sup>s</sup> .  | Diff. | IV <sup>s</sup> .  | Diff. | V <sup>s</sup> .  | Diff. |    |
|----|-------------------|-------|------------------|-------|-------------------|-------|---------------------|-------|--------------------|-------|-------------------|-------|----|
| 0  | 86,33             | 0,00  | 80,71            | 0,37  | 65,58             | 0,62  | 45,42               | 0,69  | 25,84              | 0,58  | 11,87             | 0,33  | 0  |
| 1  | 86,33             | 0,02  | 80,34            | 0,38  | 64,96             | 0,63  | 44,73               | 0,69  | 25,26              | 0,58  | 11,54             | 0,31  | 29 |
| 2  | 86,31             | 0,03  | 79,96            | 0,39  | 64,33             | 0,63  | 44,04               | 0,70  | 24,68              | 0,57  | 11,23             | 0,31  | 28 |
| 3  | 86,28             | 0,05  | 79,57            | 0,40  | 63,70             | 0,64  | 43,34               | 0,69  | 24,11              | 0,56  | 10,92             | 0,29  | 27 |
| 4  | 86,23             | 0,06  | 79,17            | 0,41  | 63,06             | 0,64  | 42,65               | 0,69  | 23,55              | 0,55  | 10,63             | 0,28  | 26 |
| 5  | 86,17             | 0,07  | 78,76            | 0,43  | 62,42             | 0,64  | 41,96               | 0,69  | 23,00              | 0,54  | 10,35             | 0,26  | 25 |
| 6  | 86,10             | 0,08  | 78,33            | 0,43  | 61,78             | 0,65  | 41,27               | 0,68  | 22,46              | 0,54  | 10,09             | 0,27  | 24 |
| 7  | 86,02             | 0,10  | 77,90            | 0,44  | 61,13             | 0,66  | 40,59               | 0,68  | 21,92              | 0,53  | 9,82              | 0,25  | 23 |
| 8  | 85,92             | 0,11  | 77,46            | 0,45  | 60,47             | 0,66  | 39,91               | 0,68  | 21,39              | 0,53  | 9,57              | 0,24  | 22 |
| 9  | 85,81             | 0,12  | 77,01            | 0,46  | 59,81             | 0,66  | 39,23               | 0,68  | 20,86              | 0,51  | 9,33              | 0,23  | 21 |
| 10 | 85,69             | 0,13  | 76,55            | 0,47  | 59,15             | 0,67  | 38,55               | 0,68  | 20,35              | 0,51  | 9,10              | 0,22  | 20 |
| 11 | 85,56             | 0,15  | 76,08            | 0,48  | 58,48             | 0,67  | 37,87               | 0,67  | 19,84              | 0,50  | 8,88              | 0,21  | 19 |
| 12 | 85,41             | 0,16  | 75,60            | 0,49  | 57,81             | 0,67  | 37,20               | 0,67  | 19,34              | 0,49  | 8,67              | 0,19  | 18 |
| 13 | 85,25             | 0,17  | 75,11            | 0,50  | 57,14             | 0,68  | 36,53               | 0,66  | 18,85              | 0,48  | 8,48              | 0,19  | 17 |
| 14 | 85,08             | 0,19  | 74,61            | 0,51  | 56,46             | 0,68  | 35,87               | 0,66  | 18,37              | 0,47  | 8,29              | 0,17  | 16 |
| 15 | 84,89             | 0,20  | 74,10            | 0,51  | 55,78             | 0,68  | 35,21               | 0,66  | 17,90              | 0,47  | 8,12              | 0,17  | 15 |
| 16 | 84,69             | 0,20  | 73,59            | 0,52  | 55,10             | 0,68  | 34,55               | 0,66  | 17,43              | 0,46  | 7,95              | 0,15  | 14 |
| 17 | 84,49             | 0,22  | 73,07            | 0,53  | 54,42             | 0,69  | 33,89               | 0,65  | 16,97              | 0,45  | 7,80              | 0,14  | 13 |
| 18 | 84,27             | 0,24  | 72,54            | 0,54  | 53,73             | 0,69  | 33,24               | 0,64  | 16,52              | 0,44  | 7,66              | 0,13  | 12 |
| 19 | 84,03             | 0,24  | 72,00            | 0,55  | 53,04             | 0,69  | 32,60               | 0,64  | 16,08              | 0,43  | 7,53              | 0,12  | 11 |
| 20 | 83,79             | 0,26  | 71,45            | 0,55  | 52,35             | 0,69  | 31,96               | 0,64  | 15,65              | 0,42  | 7,41              | 0,11  | 10 |
| 21 | 83,53             | 0,26  | 70,90            | 0,56  | 51,66             | 0,69  | 31,32               | 0,63  | 15,23              | 0,41  | 7,30              | 0,10  | 9  |
| 22 | 83,27             | 0,28  | 70,34            | 0,57  | 50,97             | 0,70  | 30,69               | 0,63  | 14,82              | 0,41  | 7,20              | 0,09  | 8  |
| 23 | 82,99             | 0,30  | 69,77            | 0,58  | 50,27             | 0,69  | 30,06               | 0,62  | 14,41              | 0,39  | 7,11              | 0,07  | 7  |
| 24 | 82,69             | 0,30  | 69,19            | 0,59  | 49,58             | 0,69  | 29,44               | 0,61  | 14,02              | 0,38  | 7,04              | 0,06  | 6  |
| 25 | 82,39             | 0,31  | 68,60            | 0,59  | 48,89             | 0,70  | 28,83               | 0,61  | 13,64              | 0,38  | 6,98              | 0,05  | 5  |
| 26 | 82,08             | 0,33  | 68,01            | 0,60  | 48,19             | 0,69  | 28,22               | 0,61  | 13,26              | 0,37  | 6,93              | 0,04  | 4  |
| 27 | 81,75             | 0,33  | 67,41            | 0,61  | 47,50             | 0,70  | 27,61               | 0,60  | 12,89              | 0,35  | 6,89              | 0,03  | 3  |
| 28 | 81,42             | 0,35  | 66,80            | 0,61  | 46,80             | 0,69  | 27,01               | 0,59  | 12,54              | 0,34  | 6,86              | 0,02  | 2  |
| 29 | 81,07             | 0,36  | 66,19            | 0,61  | 46,11             | 0,69  | 26,42               | 0,58  | 12,20              | 0,33  | 6,84              | 0,00  | 1  |
| 30 | 80,71             |       | 65,58            |       | 45,42             |       | 25,84               |       | 11,87              |       | 6,84              |       | 0  |
|    | XI <sup>s</sup> . |       | X <sup>s</sup> . |       | IX <sup>s</sup> . |       | VIII <sup>s</sup> . |       | VII <sup>s</sup> . |       | VI <sup>s</sup> . |       |    |



TABLE XLIX.

Continuation of the Horary Motion in Longitude.

Equation XXV, First Part. Argument XXV.

|    | O <sup>s</sup> .  | Diff. | I <sup>s</sup> . | Diff. | II <sup>s</sup> . | Diff. | III <sup>s</sup> .  | Diff. | IV <sup>s</sup> .  | Diff. | V <sup>s</sup> .  | Diff. |    |
|----|-------------------|-------|------------------|-------|-------------------|-------|---------------------|-------|--------------------|-------|-------------------|-------|----|
| 0  | 34. 47,94         | 0,04  | 34. 10,50        | 2,42  | 32. 35,78         | 3,71  | 30. 41,78           | 3,69  | 29. 2,31           | 2,79  | 27. 57,10         | 1,46  | 30 |
| 1  | 34. 47,90         | 0,13  | 34. 8,08         | 2,49  | 32. 32,07         | 3,73  | 30. 38,09           | 3,68  | 28. 59,52          | 2,76  | 27. 55,64         | 1,42  | 29 |
| 2  | 34. 47,77         | 0,22  | 34. 5,59         | 2,55  | 32. 28,34         | 3,75  | 30. 34,41           | 3,66  | 28. 56,76          | 2,72  | 27. 54,22         | 1,36  | 28 |
| 3  | 34. 47,55         | 0,30  | 34. 3,04         | 2,61  | 32. 24,59         | 3,76  | 30. 30,75           | 3,65  | 28. 54,04          | 2,67  | 27. 52,86         | 1,32  | 27 |
| 4  | 34. 47,25         | 0,39  | 34. 0,43         | 2,67  | 32. 20,83         | 3,78  | 30. 27,10           | 3,62  | 28. 51,37          | 2,64  | 27. 51,54         | 1,27  | 26 |
| 5  | 34. 46,86         | 0,48  | 33. 57,76        | 2,73  | 32. 17,05         | 3,79  | 30. 23,48           | 3,59  | 28. 48,73          | 2,59  | 27. 50,27         | 1,22  | 25 |
| 6  | 34. 46,38         | 0,56  | 33. 55,03        | 2,79  | 32. 13,26         | 3,81  | 30. 19,89           | 3,57  | 28. 46,14          | 2,55  | 27. 49,05         | 1,17  | 24 |
| 7  | 34. 45,82         | 0,65  | 33. 52,24        | 2,84  | 32. 9,45          | 3,81  | 30. 16,32           | 3,55  | 28. 43,59          | 2,51  | 27. 47,88         | 1,13  | 23 |
| 8  | 34. 45,17         | 0,73  | 33. 49,40        | 2,89  | 32. 5,64          | 3,82  | 30. 12,77           | 3,53  | 28. 41,08          | 2,48  | 27. 46,75         | 1,07  | 22 |
| 9  | 34. 44,44         | 0,82  | 33. 46,51        | 2,95  | 32. 1,82          | 3,83  | 30. 9,24            | 3,50  | 28. 38,60          | 2,43  | 27. 45,68         | 1,03  | 21 |
| 10 | 34. 43,62         | 0,90  | 33. 43,56        | 3,00  | 31. 57,99         | 3,84  | 30. 5,74            | 3,47  | 28. 36,17          | 2,38  | 27. 44,65         | 0,97  | 20 |
| 11 | 34. 42,72         | 0,99  | 33. 40,56        | 3,05  | 31. 54,15         | 3,84  | 30. 2,27            | 3,44  | 28. 33,79          | 2,34  | 27. 43,68         | 0,93  | 19 |
| 12 | 34. 41,73         | 1,07  | 33. 37,51        | 3,10  | 31. 50,31         | 3,85  | 29. 58,83           | 3,41  | 28. 31,45          | 2,29  | 27. 42,75         | 0,87  | 18 |
| 13 | 34. 40,66         | 1,15  | 33. 34,41        | 3,15  | 31. 46,46         | 3,84  | 29. 55,42           | 3,39  | 28. 29,16          | 2,25  | 27. 41,88         | 0,83  | 17 |
| 14 | 34. 39,51         | 1,24  | 33. 31,26        | 3,19  | 31. 42,62         | 3,85  | 29. 52,03           | 3,36  | 28. 26,91          | 2,21  | 27. 41,05         | 0,77  | 16 |
| 15 | 34. 38,27         | 1,32  | 33. 28,07        | 3,24  | 31. 38,77         | 3,85  | 29. 48,67           | 3,32  | 28. 24,70          | 2,16  | 27. 40,28         | 0,73  | 15 |
| 16 | 34. 36,95         | 1,39  | 33. 24,83        | 3,28  | 31. 34,92         | 3,84  | 29. 45,35           | 3,30  | 28. 22,54          | 2,12  | 27. 39,55         | 0,67  | 14 |
| 17 | 34. 35,56         | 1,48  | 33. 21,55        | 3,32  | 31. 31,08         | 3,85  | 29. 42,05           | 3,26  | 28. 20,42          | 2,07  | 27. 38,88         | 0,63  | 13 |
| 18 | 34. 34,08         | 1,56  | 33. 18,23        | 3,35  | 31. 27,23         | 3,84  | 29. 38,79           | 3,24  | 28. 18,35          | 2,03  | 27. 38,25         | 0,58  | 12 |
| 19 | 34. 32,52         | 1,63  | 33. 14,88        | 3,40  | 31. 23,39         | 3,83  | 29. 35,55           | 3,20  | 28. 16,32          | 1,98  | 27. 37,67         | 0,53  | 11 |
| 20 | 34. 30,89         | 1,71  | 33. 11,48        | 3,43  | 31. 19,56         | 3,83  | 29. 32,35           | 3,16  | 28. 14,34          | 1,94  | 27. 37,14         | 0,48  | 10 |
| 21 | 34. 29,18         | 1,79  | 33. 8,05         | 3,47  | 31. 15,73         | 3,81  | 29. 29,19           | 3,13  | 28. 12,40          | 1,89  | 27. 36,66         | 0,42  | 9  |
| 22 | 34. 27,39         | 1,86  | 33. 4,58         | 3,50  | 31. 11,92         | 3,81  | 29. 26,06           | 3,10  | 28. 10,51          | 1,84  | 27. 36,24         | 0,38  | 8  |
| 23 | 34. 25,53         | 1,93  | 33. 1,08         | 3,53  | 31. 8,11          | 3,80  | 29. 22,96           | 3,06  | 28. 8,67           | 1,80  | 27. 35,86         | 0,33  | 7  |
| 24 | 34. 23,60         | 2,01  | 32. 57,55        | 3,56  | 31. 4,31          | 3,79  | 29. 19,90           | 3,03  | 28. 6,87           | 1,75  | 27. 35,53         | 0,27  | 6  |
| 25 | 34. 21,59         | 2,08  | 32. 53,99        | 3,59  | 31. 0,52          | 3,78  | 29. 16,87           | 2,99  | 28. 5,12           | 1,70  | 27. 35,26         | 0,23  | 5  |
| 26 | 34. 19,51         | 2,15  | 32. 50,40        | 3,62  | 30. 56,74         | 3,76  | 29. 13,88           | 2,94  | 28. 3,42           | 1,66  | 27. 35,03         | 0,17  | 4  |
| 27 | 34. 17,36         | 2,22  | 32. 46,78        | 3,64  | 30. 52,98         | 3,75  | 29. 10,94           | 2,92  | 28. 1,76           | 1,60  | 27. 34,86         | 0,13  | 3  |
| 28 | 34. 15,14         | 2,29  | 32. 43,14        | 3,67  | 30. 49,23         | 3,73  | 29. 8,02            | 2,87  | 28. 0,16           | 1,55  | 27. 34,73         | 0,07  | 2  |
| 29 | 34. 12,85         | 2,35  | 32. 39,47        | 3,69  | 30. 45,50         | 3,72  | 29. 5,15            | 2,84  | 27. 58,61          | 1,51  | 27. 34,66         | 0,03  | 1  |
| 30 | 34. 10,50         |       | 32. 35,78        |       | 30. 41,78         |       | 29. 2,31            |       | 27. 57,10          |       | 27. 34,63         |       | 0  |
|    | XI <sup>s</sup> . |       | X <sup>s</sup> . |       | IX <sup>s</sup> . |       | VIII <sup>s</sup> . |       | VII <sup>s</sup> . |       | VI <sup>s</sup> . |       |    |



TABLE L.

Continuation of the Horary Motion in Longitude.

Equation XXV, Second Part. ARGUMENTS. Sum of the Small Equations, and Argument XXV.

| Arg. XXV.            | 5"    | 10"   | 15"   | 20"  | 25"  | 30"  | 35"  | 40"  | 45"  | 50"  |                        |
|----------------------|-------|-------|-------|------|------|------|------|------|------|------|------------------------|
| <sup>s</sup><br>O. 0 | 0,21  | 0,80  | 1,39  | 1,98 | 2,57 | 3,16 | 3,76 | 4,35 | 4,94 | 5,53 | <sup>s</sup><br>XII. 0 |
| 5                    | 0,25  | 0,83  | 1,42  | 2,01 | 2,60 | 3,18 | 3,77 | 4,36 | 4,95 | 5,53 | 25                     |
| 10                   | 0,32  | 0,90  | 1,48  | 2,06 | 2,64 | 3,22 | 3,80 | 4,38 | 4,96 | 5,54 | 20                     |
| 15                   | 0,45  | 1,11  | 1,58  | 2,15 | 2,71 | 3,28 | 3,85 | 4,41 | 4,98 | 5,55 | 15                     |
| 20                   | 0,64  | 1,19  | 1,73  | 2,28 | 2,83 | 3,37 | 3,92 | 4,47 | 5,01 | 5,56 | 10                     |
| 25                   | 0,87  | 1,39  | 1,92  | 2,44 | 2,96 | 3,48 | 4,01 | 4,53 | 5,05 | 5,58 | 5                      |
| I. 0                 | 1,16  | 1,66  | 2,15  | 2,65 | 3,14 | 3,63 | 4,13 | 4,62 | 5,11 | 5,61 | XI. 0                  |
| 5                    | 1,46  | 1,93  | 2,39  | 2,85 | 3,31 | 3,78 | 4,24 | 4,70 | 5,17 | 5,63 | 25                     |
| 10                   | 1,82  | 2,25  | 2,77  | 3,19 | 3,60 | 4,02 | 4,43 | 4,84 | 5,24 | 5,67 | 20                     |
| 15                   | 2,21  | 2,59  | 2,98  | 3,37 | 3,75 | 4,14 | 4,53 | 4,92 | 5,30 | 5,70 | 15                     |
| 20                   | 2,62  | 2,97  | 3,31  | 3,66 | 4,00 | 4,35 | 4,69 | 5,04 | 5,38 | 5,73 | 10                     |
| 25                   | 3,05  | 3,35  | 3,65  | 3,95 | 4,25 | 4,55 | 4,85 | 5,15 | 5,45 | 5,75 | 5                      |
| II. 0                | 3,52  | 3,77  | 4,02  | 4,27 | 4,53 | 4,78 | 5,03 | 5,29 | 5,54 | 5,79 | X. 0                   |
| 5                    | 3,99  | 4,19  | 4,40  | 4,60 | 4,81 | 5,01 | 5,22 | 5,42 | 5,63 | 5,83 | 25                     |
| 10                   | 4,46  | 4,62  | 4,78  | 4,93 | 5,09 | 5,25 | 5,40 | 5,56 | 5,71 | 5,87 | 20                     |
| 15                   | 4,95  | 5,05  | 5,16  | 5,27 | 5,37 | 5,48 | 5,59 | 5,69 | 5,80 | 5,91 | 15                     |
| 20                   | 5,43  | 5,49  | 5,54  | 5,60 | 5,66 | 5,72 | 5,78 | 5,84 | 5,90 | 5,96 | 10                     |
| 25                   | 5,91  | 5,92  | 5,93  | 5,94 | 5,95 | 5,96 | 5,97 | 5,98 | 5,99 | 6,00 | 5                      |
| III. 0               | 6,37  | 6,33  | 6,30  | 6,26 | 6,22 | 6,18 | 6,14 | 6,11 | 6,07 | 6,03 | IX. 0                  |
| 5                    | 6,83  | 6,74  | 6,66  | 6,57 | 6,49 | 6,41 | 6,32 | 6,24 | 6,15 | 6,07 | 25                     |
| 10                   | 7,27  | 7,14  | 7,01  | 6,88 | 6,75 | 6,62 | 6,49 | 6,36 | 6,23 | 6,10 | 20                     |
| 15                   | 7,70  | 7,53  | 7,35  | 7,18 | 7,01 | 6,83 | 6,66 | 6,49 | 6,31 | 6,14 | 15                     |
| 20                   | 8,10  | 7,89  | 7,67  | 7,46 | 7,24 | 7,03 | 6,81 | 6,60 | 6,39 | 6,17 | 10                     |
| 25                   | 8,49  | 8,24  | 7,98  | 7,73 | 7,48 | 7,22 | 6,97 | 6,71 | 6,46 | 6,20 | 5                      |
| IV. 0                | 8,86  | 8,57  | 8,27  | 7,98 | 7,69 | 7,40 | 7,11 | 6,82 | 6,52 | 6,23 | VIII. 0                |
| 5                    | 9,20  | 8,87  | 8,55  | 8,22 | 7,89 | 7,57 | 7,24 | 6,91 | 6,59 | 6,26 | 25                     |
| 10                   | 9,50  | 9,15  | 8,79  | 8,43 | 8,07 | 7,72 | 7,36 | 7,00 | 6,64 | 6,29 | 20                     |
| 15                   | 9,80  | 9,41  | 9,02  | 8,63 | 8,25 | 7,86 | 7,47 | 7,08 | 6,70 | 6,31 | 15                     |
| 20                   | 10,05 | 9,64  | 9,22  | 8,81 | 8,40 | 7,98 | 7,57 | 7,16 | 6,74 | 6,33 | 10                     |
| 25                   | 10,28 | 9,85  | 9,41  | 8,97 | 8,53 | 8,10 | 7,66 | 7,22 | 6,79 | 6,35 | 5                      |
| V. 0                 | 10,48 | 10,02 | 9,56  | 9,11 | 8,65 | 8,19 | 7,74 | 7,28 | 6,82 | 6,37 | VII. 0                 |
| 5                    | 10,65 | 10,18 | 9,70  | 9,23 | 8,75 | 8,28 | 7,80 | 7,33 | 6,85 | 6,38 | 25                     |
| 10                   | 10,79 | 10,31 | 9,82  | 9,33 | 8,84 | 8,35 | 7,86 | 7,37 | 6,88 | 6,39 | 20                     |
| 15                   | 10,90 | 10,40 | 9,90  | 9,40 | 8,90 | 8,40 | 7,90 | 7,40 | 6,90 | 6,40 | 15                     |
| 20                   | 10,98 | 10,47 | 9,97  | 9,46 | 8,95 | 8,44 | 7,94 | 7,42 | 6,92 | 6,41 | 10                     |
| 25                   | 11,03 | 10,52 | 10,01 | 9,49 | 8,98 | 8,46 | 7,95 | 7,44 | 6,92 | 6,41 | 5                      |
| VI. 0                | 11,05 | 10,53 | 10,02 | 9,50 | 8,99 | 8,47 | 7,96 | 7,44 | 6,93 | 6,41 | VI. 0                  |
|                      | 5"    | 10"   | 15"   | 20"  | 25"  | 30"  | 35"  | 40"  | 45"  | 50"  | Arg. XXV.              |



## Continuation of TABLE I.

## Continuation of the Horary Motion in Longitude.

Equation XXV, Second Part. ARGUMENTS. Sum of the Small Equations, and Argument XXV.

| Arg. XXV.            | 50"  | 55"  | 60"  | 65"  | 70"  | 75"  | 80"  | 85"  | 90"   | 95"   | 100"  |                        |
|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|------------------------|
| <sup>s</sup><br>O. 0 | 5,53 | 6,12 | 6,71 | 7,30 | 7,89 | 8,48 | 9,07 | 9,66 | 10,25 | 10,84 | 11,43 | <sup>s</sup><br>XII. 0 |
| 5                    | 5,53 | 6,12 | 6,70 | 7,29 | 7,88 | 8,47 | 9,05 | 9,64 | 10,23 | 10,82 | 11,40 | 25                     |
| 10                   | 5,54 | 6,12 | 6,70 | 7,27 | 7,85 | 8,43 | 9,01 | 9,59 | 10,17 | 10,75 | 11,33 | 20                     |
| 15                   | 5,55 | 6,11 | 6,68 | 7,25 | 7,81 | 8,38 | 8,95 | 9,51 | 10,08 | 10,65 | 11,21 | 15                     |
| 20                   | 5,56 | 6,11 | 6,66 | 7,20 | 7,75 | 8,30 | 8,84 | 9,39 | 9,94  | 10,48 | 11,03 | 10                     |
| 25                   | 5,58 | 6,10 | 6,63 | 7,15 | 7,69 | 8,19 | 8,71 | 9,24 | 9,76  | 10,28 | 10,81 | 5                      |
| 0                    | 5,61 | 6,10 | 6,60 | 7,09 | 7,59 | 8,08 | 8,57 | 9,07 | 9,56  | 10,06 | 10,55 | XI. 0                  |
| 5                    | 5,63 | 6,09 | 6,55 | 7,02 | 7,46 | 7,92 | 8,39 | 8,85 | 9,31  | 9,78  | 10,24 | 25                     |
| 10                   | 5,67 | 6,08 | 6,50 | 6,93 | 7,33 | 7,74 | 8,15 | 8,57 | 8,98  | 9,39  | 9,81  | 20                     |
| 15                   | 5,70 | 6,08 | 6,46 | 6,85 | 7,20 | 7,62 | 8,01 | 8,40 | 8,79  | 9,17  | 9,56  | 15                     |
| 20                   | 5,73 | 6,07 | 6,40 | 6,76 | 7,11 | 7,45 | 7,80 | 8,14 | 8,49  | 8,83  | 9,18  | 10                     |
| 25                   | 5,75 | 6,05 | 6,35 | 6,65 | 6,95 | 7,25 | 7,55 | 7,85 | 8,15  | 8,45  | 8,75  | 5                      |
| 0                    | 5,79 | 6,05 | 6,30 | 6,55 | 6,80 | 7,06 | 7,31 | 7,56 | 7,82  | 8,07  | 8,32  | X. 0                   |
| 5                    | 5,83 | 6,04 | 6,24 | 6,45 | 6,65 | 6,86 | 7,06 | 7,27 | 7,47  | 7,68  | 7,83  | 25                     |
| 10                   | 5,87 | 6,03 | 6,18 | 6,34 | 6,49 | 6,65 | 6,81 | 6,96 | 7,12  | 7,27  | 7,43  | 20                     |
| 15                   | 5,91 | 6,02 | 6,12 | 6,23 | 6,34 | 6,44 | 6,55 | 6,66 | 6,76  | 6,87  | 7,00  | 15                     |
| 20                   | 5,96 | 6,02 | 6,06 | 6,13 | 6,19 | 6,25 | 6,31 | 6,37 | 6,43  | 6,49  | 6,55  | 10                     |
| 25                   | 6,00 | 6,01 | 6,00 | 6,03 | 6,04 | 6,05 | 6,06 | 6,07 | 6,08  | 6,09  | 6,10  | 5                      |
| 0                    | 6,03 | 6,00 | 5,95 | 5,92 | 5,88 | 5,84 | 5,80 | 5,76 | 5,73  | 5,69  | 5,65  | IX. 0                  |
| 5                    | 6,07 | 5,99 | 5,90 | 5,81 | 5,73 | 5,65 | 5,56 | 5,48 | 5,39  | 5,31  | 5,22  | 25                     |
| 10                   | 6,10 | 5,97 | 5,85 | 5,72 | 5,59 | 5,46 | 5,33 | 5,20 | 5,07  | 4,94  | 4,81  | 20                     |
| 15                   | 6,14 | 5,96 | 5,79 | 5,62 | 5,44 | 5,27 | 5,10 | 4,92 | 4,75  | 4,58  | 4,40  | 15                     |
| 20                   | 6,17 | 5,96 | 5,74 | 5,53 | 5,31 | 5,10 | 4,88 | 4,67 | 4,46  | 4,24  | 4,03  | 10                     |
| 25                   | 6,20 | 5,95 | 5,69 | 5,44 | 5,19 | 4,93 | 4,68 | 4,42 | 4,17  | 3,91  | 3,66  | 5                      |
| 0                    | 6,23 | 5,94 | 5,65 | 5,36 | 5,07 | 4,77 | 4,48 | 4,19 | 3,90  | 3,61  | 3,32  | VIII. 0                |
| 5                    | 6,26 | 5,93 | 5,61 | 5,28 | 4,96 | 4,63 | 4,30 | 3,98 | 3,65  | 3,32  | 3,00  | 25                     |
| 10                   | 6,29 | 5,93 | 5,57 | 5,21 | 4,86 | 4,50 | 4,14 | 3,78 | 3,43  | 3,07  | 2,71  | 20                     |
| 15                   | 6,31 | 5,92 | 5,53 | 5,15 | 4,76 | 4,37 | 3,94 | 3,60 | 3,21  | 2,82  | 2,43  | 15                     |
| 20                   | 6,33 | 5,92 | 5,50 | 5,09 | 4,68 | 4,26 | 3,85 | 3,44 | 3,02  | 2,61  | 2,20  | 10                     |
| 25                   | 6,35 | 5,91 | 5,48 | 5,04 | 4,60 | 4,17 | 3,73 | 3,29 | 2,85  | 2,42  | 1,98  | 5                      |
| 0                    | 6,37 | 5,91 | 5,45 | 4,99 | 4,54 | 4,08 | 3,62 | 3,17 | 2,71  | 2,25  | 1,80  | VII. 0                 |
| 5                    | 6,38 | 5,91 | 5,43 | 4,96 | 4,48 | 4,01 | 3,53 | 3,06 | 2,58  | 2,11  | 1,63  | 25                     |
| 10                   | 6,39 | 5,90 | 5,41 | 4,92 | 4,43 | 3,94 | 3,45 | 2,96 | 2,47  | 1,98  | 1,49  | 20                     |
| 15                   | 6,40 | 5,90 | 5,40 | 4,90 | 4,40 | 3,90 | 3,40 | 2,90 | 2,40  | 1,90  | 1,40  | 15                     |
| 20                   | 6,41 | 5,90 | 5,39 | 4,88 | 4,37 | 3,86 | 3,36 | 2,85 | 2,36  | 1,83  | 1,32  | 10                     |
| 25                   | 6,41 | 5,90 | 5,38 | 4,87 | 4,36 | 3,84 | 3,33 | 2,82 | 2,30  | 1,79  | 1,28  | 5                      |
| 0                    | 6,41 | 5,90 | 5,38 | 4,87 | 4,35 | 3,84 | 3,32 | 2,81 | 2,29  | 1,78  | 1,26  | VI. 0                  |
|                      | 50"  | 55"  | 60"  | 65"  | 70"  | 75"  | 80"  | 85"  | 90"   | 95"   | 100"  | Arg. XXV.              |



TABLE LI.

Horary Motion in Longitude.

Equation XXVI. First Part. Argument XXVI.

|    | O <sup>s</sup> .  | Diff. | I <sup>s</sup> . | Diff. | II <sup>s</sup> . | Diff. | III <sup>s</sup> .  | Diff. | IV <sup>s</sup> .  | Diff. | V <sup>s</sup> .  | Diff. |    |
|----|-------------------|-------|------------------|-------|-------------------|-------|---------------------|-------|--------------------|-------|-------------------|-------|----|
| 0  | 81,25             | 0,02  | 60,37            | 1,26  | 19,66             | 1,20  | 0,24                | 0,05  | 21,02              | 1,25  | 62,39             | 1,25  | 30 |
| 1  | 81,23             | 0,08  | 59,11            | 1,28  | 18,46             | 1,16  | 0,29                | 0,09  | 22,27              | 1,28  | 63,64             | 1,23  | 29 |
| 2  | 81,15             | 0,13  | 57,83            | 1,31  | 17,30             | 1,14  | 0,38                | 0,15  | 23,55              | 1,30  | 64,87             | 1,20  | 28 |
| 3  | 81,02             | 0,18  | 56,52            | 1,32  | 16,16             | 1,11  | 0,53                | 0,20  | 24,85              | 1,32  | 66,07             | 1,16  | 27 |
| 4  | 80,84             | 0,23  | 55,20            | 1,35  | 15,05             | 1,07  | 0,73                | 0,24  | 26,17              | 1,34  | 67,23             | 1,14  | 26 |
| 5  | 80,61             | 0,28  | 53,85            | 1,36  | 13,98             | 1,04  | 1,97                | 0,29  | 27,51              | 1,36  | 68,37             | 1,10  | 25 |
| 6  | 80,33             | 0,33  | 52,49            | 1,38  | 12,94             | 1,01  | 1,26                | 0,34  | 28,87              | 1,37  | 69,47             | 1,07  | 24 |
| 7  | 80,00             | 0,38  | 51,11            | 1,39  | 11,93             | 0,97  | 1,60                | 0,39  | 30,24              | 1,39  | 70,54             | 1,04  | 23 |
| 8  | 79,62             | 0,43  | 49,72            | 1,39  | 10,96             | 0,93  | 1,99                | 0,43  | 31,63              | 1,40  | 71,58             | 1,00  | 22 |
| 9  | 79,19             | 0,48  | 48,33            | 1,41  | 10,03             | 0,90  | 2,42                | 0,48  | 33,03              | 1,41  | 72,58             | 0,96  | 21 |
| 10 | 78,71             | 0,52  | 46,92            | 1,41  | 9,13              | 0,86  | 2,90                | 0,52  | 34,44              | 1,42  | 73,54             | 0,93  | 20 |
| 11 | 78,19             | 0,58  | 45,51            | 1,41  | 8,27              | 0,82  | 3,42                | 0,58  | 35,86              | 1,43  | 74,47             | 0,88  | 19 |
| 12 | 77,61             | 0,62  | 44,10            | 1,42  | 7,45              | 0,78  | 4,00                | 0,62  | 37,29              | 1,43  | 75,35             | 0,84  | 18 |
| 13 | 76,99             | 0,66  | 42,68            | 1,43  | 6,67              | 0,74  | 4,62                | 0,65  | 38,72              | 1,45  | 76,19             | 0,80  | 17 |
| 14 | 76,33             | 0,71  | 41,25            | 1,42  | 5,93              | 0,70  | 5,27                | 0,70  | 40,17              | 1,44  | 76,99             | 0,76  | 16 |
| 15 | 75,62             | 0,75  | 39,83            | 1,42  | 5,23              | 0,66  | 5,97                | 0,74  | 41,61              | 1,45  | 77,75             | 0,71  | 15 |
| 16 | 74,87             | 0,80  | 38,41            | 1,42  | 4,57              | 0,61  | 6,71                | 0,79  | 43,06              | 1,44  | 78,46             | 0,67  | 14 |
| 17 | 74,07             | 0,83  | 36,99            | 1,41  | 3,96              | 0,56  | 7,50                | 0,83  | 44,50              | 1,44  | 79,13             | 0,62  | 13 |
| 18 | 73,24             | 0,88  | 35,58            | 1,40  | 3,40              | 0,52  | 8,33                | 0,87  | 45,94              | 1,44  | 79,75             | 0,57  | 12 |
| 19 | 72,36             | 0,92  | 34,18            | 1,40  | 2,88              | 0,48  | 9,20                | 0,89  | 47,38              | 1,43  | 80,32             | 0,53  | 11 |
| 20 | 71,44             | 0,96  | 32,78            | 1,38  | 2,40              | 0,43  | 10,09               | 0,94  | 48,81              | 1,42  | 80,85             | 0,48  | 10 |
| 21 | 70,48             | 0,99  | 31,40            | 1,38  | 1,97              | 0,39  | 11,03               | 0,98  | 50,23              | 1,41  | 81,33             | 0,44  | 9  |
| 22 | 69,49             | 1,03  | 30,02            | 1,36  | 1,58              | 0,33  | 12,01               | 1,02  | 51,64              | 1,40  | 81,77             | 0,38  | 8  |
| 23 | 68,46             | 1,06  | 28,66            | 1,34  | 1,25              | 0,29  | 13,03               | 1,05  | 53,04              | 1,39  | 82,15             | 0,33  | 7  |
| 24 | 67,40             | 1,10  | 27,32            | 1,33  | 0,96              | 0,24  | 14,08               | 1,08  | 54,43              | 1,37  | 82,48             | 0,28  | 6  |
| 25 | 66,30             | 1,13  | 25,99            | 1,31  | 0,72              | 0,19  | 15,16               | 1,11  | 55,80              | 1,36  | 82,76             | 0,23  | 5  |
| 26 | 65,17             | 1,16  | 24,68            | 1,29  | 0,53              | 0,15  | 16,27               | 1,14  | 57,16              | 1,34  | 82,99             | 0,18  | 4  |
| 27 | 64,01             | 1,19  | 23,39            | 1,27  | 0,38              | 0,09  | 17,41               | 1,18  | 58,50              | 1,32  | 83,17             | 0,13  | 3  |
| 28 | 62,82             | 1,21  | 22,12            | 1,24  | 0,29              | 0,05  | 18,59               | 1,20  | 59,82              | 1,29  | 83,30             | 0,07  | 2  |
| 29 | 61,61             | 1,24  | 20,88            | 1,22  | 0,24              | 0,00  | 19,79               | 1,23  | 61,11              | 1,28  | 83,37             | 0,03  | 1  |
| 30 | 60,37             |       | 19,66            |       | 0,24              |       | 21,02               |       | 62,39              |       | 83,40             |       | 0  |
|    | XI <sup>s</sup> . |       | X <sup>s</sup> . |       | IX <sup>s</sup> . |       | VIII <sup>s</sup> . |       | VII <sup>s</sup> . |       | VI <sup>s</sup> . |       |    |



TABLE LII.

Horary Motion in Longitude. Equation XXVI, Second Part.

ARGUMENT. Sum of the twenty-five First Equations, diminished by the Horary Motion of the Sun, and the twenty-sixth Equation.

|                                                | 0"     | 5"     | 10"    | 15"    | 20"    | 25"    | 30"    | 35"    | 40"    |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 24. 0"                                         | 19",89 | 18",68 | 17",47 | 16",26 | 15",06 | 13",86 | 12",65 | 11",45 | 10",24 |
| 24. 20                                         | 19,47  | 18,32  | 17,16  | 16,00  | 14,85  | 13,69  | 12,53  | 11,38  | 10,23  |
| 24. 40                                         | 19,05  | 17,96  | 16,85  | 15,74  | 14,64  | 13,53  | 12,42  | 11,32  | 10,22  |
| 25. 0                                          | 18,64  | 17,59  | 16,53  | 15,48  | 14,42  | 13,37  | 12,32  | 11,26  | 10,21  |
| 25. 20                                         | 18,22  | 17,22  | 16,22  | 15,22  | 14,21  | 13,21  | 12,21  | 11,20  | 10,20  |
| 25. 40                                         | 17,81  | 16,86  | 15,91  | 14,96  | 14,01  | 13,05  | 12,10  | 11,14  | 10,19  |
| 26. 0                                          | 17,40  | 16,49  | 15,59  | 14,69  | 13,79  | 12,89  | 11,99  | 11,08  | 10,18  |
| 26. 20                                         | 16,98  | 16,13  | 15,28  | 14,42  | 13,57  | 12,72  | 11,87  | 11,02  | 10,17  |
| 26. 40                                         | 16,56  | 15,76  | 14,96  | 14,16  | 13,36  | 12,56  | 11,76  | 10,96  | 10,16  |
| 27. 0                                          | 16,15  | 15,40  | 14,65  | 13,90  | 13,15  | 12,40  | 11,65  | 10,90  | 10,15  |
| 27. 20                                         | 15,74  | 15,04  | 14,34  | 13,64  | 12,94  | 12,24  | 11,54  | 10,84  | 10,14  |
| 27. 40                                         | 15,32  | 14,67  | 14,02  | 13,38  | 12,73  | 12,08  | 11,43  | 10,78  | 10,13  |
| 28. 0                                          | 14,90  | 14,31  | 13,71  | 13,11  | 12,51  | 11,91  | 11,32  | 10,72  | 10,12  |
| 28. 20                                         | 14,48  | 13,95  | 13,39  | 12,85  | 12,30  | 11,75  | 11,20  | 10,66  | 10,11  |
| 28. 40                                         | 14,07  | 13,58  | 13,08  | 12,58  | 12,09  | 11,59  | 11,09  | 10,60  | 10,10  |
| 29. 0                                          | 13,66  | 13,21  | 12,77  | 12,32  | 11,88  | 11,43  | 10,98  | 10,54  | 10,09  |
| 29. 20                                         | 13,25  | 12,85  | 12,45  | 12,06  | 11,66  | 11,27  | 10,87  | 10,48  | 10,08  |
| 29. 40                                         | 12,83  | 12,49  | 12,14  | 11,80  | 11,45  | 11,11  | 10,76  | 10,42  | 10,07  |
| 30. 0                                          | 12,41  | 12,12  | 11,83  | 11,53  | 11,24  | 10,94  | 10,65  | 10,36  | 10,06  |
| 30. 20                                         | 12,00  | 11,76  | 11,51  | 11,27  | 11,02  | 10,78  | 10,54  | 10,29  | 10,05  |
| 30. 40                                         | 11,59  | 11,39  | 11,20  | 11,01  | 10,81  | 10,62  | 10,43  | 10,23  | 10,04  |
| 31. 0                                          | 11,17  | 11,03  | 10,89  | 10,74  | 10,60  | 10,46  | 10,32  | 10,17  | 10,03  |
| 31. 20                                         | 10,75  | 10,67  | 10,58  | 10,48  | 10,38  | 10,31  | 10,21  | 10,11  | 10,02  |
| 31. 40                                         | 10,34  | 10,30  | 10,26  | 10,22  | 10,17  | 10,15  | 10,10  | 10,05  | 10,01  |
| 32. 0                                          | 9,93   | 9,94   | 9,95   | 9,95   | 9,96   | 9,98   | 9,99   | 9,99   | 10,00  |
| 32. 20                                         | 9,51   | 9,57   | 9,64   | 9,69   | 9,75   | 9,81   | 9,87   | 9,93   | 9,99   |
| 32. 40                                         | 9,10   | 9,20   | 9,32   | 9,42   | 9,53   | 9,65   | 9,76   | 9,87   | 9,98   |
| 33. 0                                          | 8,68   | 8,83   | 9,01   | 9,16   | 9,32   | 9,49   | 9,65   | 9,81   | 9,97   |
| 33. 20                                         | 8,27   | 8,47   | 8,69   | 8,90   | 9,11   | 9,33   | 9,54   | 9,75   | 9,96   |
| 33. 40                                         | 7,85   | 8,10   | 8,38   | 8,64   | 8,90   | 9,17   | 9,43   | 9,69   | 9,95   |
| 34. 0                                          | 7,44   | 7,74   | 8,07   | 8,38   | 8,69   | 9,01   | 9,32   | 9,63   | 9,94   |
| 34. 20                                         | 7,02   | 7,37   | 7,75   | 8,11   | 8,47   | 8,84   | 9,20   | 9,57   | 9,93   |
| 34. 40                                         | 6,61   | 7,01   | 7,44   | 7,85   | 8,26   | 8,68   | 9,09   | 9,51   | 9,92   |
| 35. 0                                          | 6,19   | 6,65   | 7,12   | 7,58   | 8,05   | 8,52   | 8,98   | 9,45   | 9,91   |
| 35. 20                                         | 5,78   | 6,29   | 6,81   | 7,32   | 7,84   | 8,36   | 8,87   | 9,39   | 9,90   |
| 35. 40                                         | 5,36   | 5,92   | 6,50   | 7,06   | 7,62   | 8,20   | 8,76   | 9,32   | 9,89   |
| 36. 0                                          | 4,95   | 5,55   | 6,18   | 6,80   | 7,41   | 8,04   | 8,65   | 9,26   | 9,88   |
| 36. 20                                         | 4,53   | 5,19   | 5,87   | 6,53   | 7,20   | 7,88   | 8,54   | 9,20   | 9,87   |
| 36. 40                                         | 4,11   | 4,82   | 5,56   | 6,27   | 6,98   | 7,71   | 8,43   | 9,14   | 9,86   |
| 37. 0                                          | 3,70   | 4,46   | 5,24   | 6,01   | 6,77   | 7,55   | 8,32   | 9,08   | 9,85   |
| 37. 20                                         | 3,29   | 4,10   | 4,93   | 5,74   | 6,56   | 7,39   | 8,21   | 9,02   | 9,84   |
| 37. 40                                         | 2,87   | 3,73   | 4,62   | 5,48   | 6,34   | 7,23   | 8,10   | 8,96   | 9,83   |
| 38. 0                                          | 2,45   | 3,36   | 4,31   | 5,22   | 6,13   | 7,07   | 7,99   | 8,90   | 9,82   |
| Difference for 20",0 in the vertical Argument. |        |        |        |        |        |        |        |        |        |
|                                                | 0,41   | 0,36   | 0,31   | 0,26   | 0,21   | 0,16   | 0,11   | 0,06   | 0,01   |



## Continuation of TABLE LII.

Horary Motion in Longitude. Equation XXVI, Second Part.

ARGUMENT. Sum of the twenty-five First Equations, diminished by the Horary Motion of the Sun, and the twenty-sixth Equation.

|        | 45"   | 50"   | 55"   | 60"   | 65"   | 70"   | 75"   | 80"   | 85"   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 24. 0" | 9",04 | 7",84 | 6",62 | 5",42 | 4",21 | 3",01 | 1",80 | 0",61 | ...   |
| 24. 20 | 9,08  | 7,93  | 6,76  | 5,61  | 4,45  | 3,30  | 2,14  | 1,00  | ...   |
| 24. 40 | 9,12  | 8,02  | 6,91  | 5,80  | 4,69  | 3,59  | 2,49  | 1,40  | 0",31 |
| 25. 0  | 9,16  | 8,11  | 7,05  | 5,99  | 4,94  | 3,88  | 2,83  | 1,79  | 0,75  |
| 25. 20 | 9,20  | 8,20  | 7,20  | 6,19  | 5,19  | 4,18  | 3,18  | 2,18  | 1,19  |
| 25. 40 | 9,24  | 8,29  | 7,34  | 6,38  | 5,44  | 4,47  | 3,53  | 2,57  | 1,63  |
| 26. 0  | 9,28  | 8,38  | 7,48  | 6,57  | 5,67  | 4,77  | 3,87  | 2,96  | 2,07  |
| 26. 20 | 9,32  | 8,47  | 7,62  | 6,76  | 5,91  | 5,06  | 4,21  | 3,36  | 2,51  |
| 26. 40 | 9,36  | 8,56  | 7,76  | 6,96  | 6,16  | 5,36  | 4,56  | 3,76  | 2,96  |
| 27. 0  | 9,40  | 8,65  | 7,90  | 7,15  | 6,40  | 5,65  | 4,90  | 4,15  | 3,40  |
| 27. 20 | 9,44  | 8,74  | 8,04  | 7,34  | 6,64  | 5,94  | 5,24  | 4,54  | 3,84  |
| 27. 40 | 9,48  | 8,83  | 8,18  | 7,53  | 6,88  | 6,24  | 5,59  | 4,94  | 4,29  |
| 28. 0  | 9,52  | 8,92  | 8,33  | 7,71  | 7,13  | 6,53  | 5,94  | 5,34  | 4,74  |
| 28. 20 | 9,56  | 9,01  | 8,47  | 7,92  | 7,37  | 6,82  | 6,29  | 5,73  | 5,19  |
| 28. 40 | 9,60  | 9,10  | 8,61  | 8,11  | 7,61  | 7,12  | 6,64  | 6,12  | 5,63  |
| 29. 0  | 9,64  | 9,20  | 8,75  | 8,30  | 7,86  | 7,41  | 6,99  | 6,51  | 6,07  |
| 29. 20 | 9,68  | 9,29  | 8,89  | 8,49  | 8,10  | 7,70  | 7,34  | 6,91  | 6,51  |
| 29. 40 | 9,72  | 9,38  | 9,03  | 8,69  | 8,34  | 8,00  | 7,68  | 7,31  | 6,96  |
| 30. 0  | 9,76  | 9,47  | 9,17  | 8,88  | 8,58  | 8,29  | 8,02  | 7,70  | 7,40  |
| 30. 20 | 9,80  | 9,56  | 9,32  | 9,07  | 8,83  | 8,58  | 8,36  | 8,10  | 7,85  |
| 30. 40 | 9,84  | 9,65  | 9,46  | 9,27  | 9,07  | 8,88  | 8,70  | 8,49  | 8,30  |
| 31. 0  | 9,88  | 9,74  | 9,60  | 9,46  | 9,31  | 9,17  | 9,04  | 8,88  | 8,75  |
| 31. 20 | 9,92  | 9,83  | 9,74  | 9,65  | 9,55  | 9,46  | 9,38  | 9,27  | 9,19  |
| 31. 40 | 9,96  | 9,92  | 9,88  | 9,84  | 9,79  | 9,75  | 9,72  | 9,67  | 9,63  |
| 32. 0  | 10,00 | 10,01 | 10,02 | 10,03 | 10,04 | 10,05 | 10,06 | 10,07 | 10,08 |
| 32. 20 | 10,04 | 10,10 | 10,16 | 10,22 | 10,28 | 10,35 | 10,40 | 10,46 | 10,52 |
| 32. 40 | 10,08 | 10,20 | 10,31 | 10,42 | 10,53 | 10,64 | 10,74 | 10,86 | 10,96 |
| 33. 0  | 10,12 | 10,29 | 10,45 | 10,61 | 10,77 | 10,93 | 11,09 | 11,26 | 11,40 |
| 33. 20 | 10,16 | 10,38 | 10,59 | 10,80 | 10,91 | 11,23 | 11,44 | 11,65 | 11,84 |
| 33. 40 | 10,20 | 10,47 | 10,73 | 10,99 | 11,26 | 11,52 | 11,79 | 12,04 | 12,29 |
| 34. 0  | 10,24 | 10,56 | 10,86 | 11,18 | 11,50 | 11,81 | 12,14 | 12,44 | 12,74 |
| 34. 20 | 10,28 | 10,65 | 11,01 | 11,37 | 11,74 | 12,11 | 12,49 | 12,84 | 13,19 |
| 34. 40 | 10,32 | 10,74 | 11,15 | 11,56 | 11,98 | 12,40 | 12,84 | 13,23 | 13,63 |
| 35. 0  | 10,36 | 10,83 | 11,30 | 11,76 | 12,23 | 12,69 | 13,18 | 13,62 | 14,07 |
| 35. 20 | 10,40 | 10,92 | 11,44 | 11,95 | 12,47 | 12,99 | 13,52 | 14,01 | 14,51 |
| 35. 40 | 10,44 | 11,01 | 11,58 | 12,14 | 12,71 | 13,28 | 13,86 | 14,41 | 14,96 |
| 36. 0  | 10,48 | 11,10 | 11,72 | 12,33 | 12,95 | 13,57 | 14,21 | 14,80 | 15,40 |
| 36. 20 | 10,52 | 11,20 | 11,86 | 12,52 | 13,19 | 13,87 | 14,55 | 15,19 | 15,85 |
| 36. 40 | 10,56 | 11,29 | 12,00 | 12,72 | 13,44 | 14,16 | 14,89 | 15,59 | 16,30 |
| 37. 0  | 10,60 | 11,38 | 12,14 | 12,91 | 13,68 | 14,45 | 15,23 | 15,98 | 16,75 |
| 37. 20 | 10,64 | 11,47 | 12,29 | 13,10 | 13,93 | 14,74 | 15,58 | 16,37 | 17,19 |
| 37. 40 | 10,68 | 11,56 | 12,43 | 13,30 | 14,17 | 15,04 | 15,92 | 16,76 | 17,63 |
| 38. 0  | 10,72 | 11,65 | 12,57 | 13,49 | 14,41 | 15,34 | 16,26 | 17,16 | 18,08 |

Difference for 20",0 in the vertical Argument.

|      |      |      |      |      |      |      |      |      |   |
|------|------|------|------|------|------|------|------|------|---|
| +    | +    | +    | +    | +    | +    | +    | +    | +    | + |
| 0,04 | 0,09 | 0,14 | 0,19 | 0,24 | 0,29 | 0,34 | 0,39 | 0,44 |   |



TABLE LIII.

Horary Motion in Longitude. Equation XXVII. First Part.

ARGUMENT. Longitude.

|      |                    |                   |                      |                      |                   |                      |                     |                   |                      |                     |                   |                      |
|------|--------------------|-------------------|----------------------|----------------------|-------------------|----------------------|---------------------|-------------------|----------------------|---------------------|-------------------|----------------------|
|      | <sup>s</sup><br>O. | <sup>o</sup><br>0 | <sup>"</sup><br>0,18 | <sup>s</sup><br>III. | <sup>o</sup><br>0 | <sup>"</sup><br>1,00 | <sup>s</sup><br>VI. | <sup>o</sup><br>0 | <sup>"</sup><br>1,82 | <sup>s</sup><br>IX. | <sup>o</sup><br>0 | <sup>"</sup><br>1,00 |
|      |                    | 10                | 0,19                 |                      | 10                | 1,14                 |                     | 10                | 1,81                 |                     | 10                | 0,86                 |
|      |                    | 20                | 0,23                 |                      | 20                | 1,28                 |                     | 20                | 1,77                 |                     | 20                | 0,72                 |
| I.   |                    | 0                 | 0,29                 | IV.                  |                   | 0                    | VII.                |                   | 0                    | X.                  |                   | 0                    |
|      |                    | 10                | 0,37                 |                      | 10                | 1,53                 |                     | 10                | 1,63                 |                     | 10                | 0,47                 |
|      |                    | 20                | 0,47                 |                      | 20                | 1,63                 |                     | 20                | 1,53                 |                     | 20                | 0,37                 |
| II.  |                    | 0                 | 0,59                 | V.                   |                   | 0                    | VIII.               |                   | 0                    | XI.                 |                   | 0                    |
|      |                    | 10                | 0,72                 |                      | 10                | 1,77                 |                     | 10                | 1,28                 |                     | 10                | 0,23                 |
|      |                    | 20                | 0,86                 |                      | 20                | 1,81                 |                     | 20                | 1,14                 |                     | 20                | 0,19                 |
| III. |                    | 0                 | 1,00                 | VI.                  |                   | 0                    | IX.                 |                   | 0                    | XII.                |                   | 0                    |
|      |                    |                   |                      |                      |                   | 1,82                 |                     |                   | 1,00                 |                     |                   | 0,18                 |

TABLE LIV.

Equation XXVII. Second Part.

ARGUMENT. Equation XXVII, and the Sum of all the preceding Equations  
+ Equation XXV + Equation XXVI - 31'. 12",0.

| Equat.<br>27 | 25'   | 26'   | 27'   | 28'   | 29'   | 30'   | 31'   | 32'   | 33'   | 34'   | 35'   | 36'   | 37'   | 38'   | 39'   |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| "            | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     | "     |
| 0,1          | 10,23 | 10,20 | 10,17 | 10,15 | 10,12 | 10,09 | 10,07 | 10,04 | 10,01 | 9,99  | 9,96  | 9,93  | 9,91  | 9,88  | 9,85  |
| 0,2          | 10,20 | 10,18 | 10,15 | 10,13 | 10,11 | 10,08 | 10,06 | 10,04 | 10,01 | 9,99  | 9,96  | 9,94  | 9,92  | 9,89  | 9,87  |
| 0,3          | 10,18 | 10,16 | 10,14 | 10,12 | 10,10 | 10,07 | 10,06 | 10,03 | 10,01 | 9,99  | 9,97  | 9,95  | 9,93  | 9,90  | 9,88  |
| 0,4          | 10,15 | 10,13 | 10,12 | 10,10 | 10,08 | 10,06 | 10,05 | 10,03 | 10,01 | 9,99  | 9,97  | 9,95  | 9,94  | 9,92  | 9,90  |
| 0,5          | 10,13 | 10,11 | 10,10 | 10,08 | 10,07 | 10,05 | 10,04 | 10,02 | 10,01 | 9,99  | 9,98  | 9,96  | 9,95  | 9,93  | 9,92  |
| 0,6          | 10,10 | 10,09 | 10,08 | 10,07 | 10,06 | 10,04 | 10,03 | 10,02 | 10,01 | 9,99  | 9,98  | 9,97  | 9,96  | 9,95  | 9,93  |
| 0,7          | 10,08 | 10,07 | 10,06 | 10,05 | 10,04 | 10,03 | 10,02 | 10,01 | 10,00 | 10,00 | 9,99  | 9,98  | 9,97  | 9,96  | 9,95  |
| 0,8          | 10,05 | 10,05 | 10,04 | 10,03 | 10,03 | 10,02 | 10,02 | 10,01 | 10,00 | 10,00 | 9,99  | 9,98  | 9,98  | 9,97  | 9,97  |
| 0,9          | 10,02 | 10,02 | 10,02 | 10,02 | 10,01 | 10,01 | 10,01 | 10,00 | 10,00 | 10,00 | 10,00 | 9,99  | 9,99  | 9,99  | 9,98  |
| 1,0          | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 | 10,00 |
| 1,1          | 9,98  | 9,98  | 9,98  | 9,98  | 9,99  | 9,99  | 9,99  | 10,00 | 10,00 | 10,00 | 10,00 | 10,01 | 10,01 | 10,01 | 10,02 |
| 1,2          | 9,95  | 9,95  | 9,96  | 9,97  | 9,97  | 9,98  | 9,98  | 9,99  | 10,00 | 10,00 | 10,01 | 10,02 | 10,02 | 10,03 | 10,03 |
| 1,3          | 9,92  | 9,93  | 9,94  | 9,95  | 9,96  | 9,97  | 9,98  | 9,99  | 9,99  | 10,01 | 10,01 | 10,02 | 10,03 | 10,04 | 10,05 |
| 1,4          | 9,90  | 9,91  | 9,92  | 9,93  | 9,94  | 9,96  | 9,97  | 9,98  | 9,99  | 10,01 | 10,02 | 10,03 | 10,04 | 10,05 | 10,07 |
| 1,5          | 9,87  | 9,89  | 9,90  | 9,92  | 9,93  | 9,95  | 9,96  | 9,98  | 9,99  | 10,01 | 10,02 | 10,04 | 10,05 | 10,07 | 10,08 |
| 1,6          | 9,85  | 9,87  | 9,88  | 9,90  | 9,92  | 9,94  | 9,95  | 9,97  | 9,99  | 10,01 | 10,03 | 10,05 | 10,06 | 10,08 | 10,10 |
| 1,7          | 9,82  | 9,84  | 9,86  | 9,88  | 9,90  | 9,93  | 9,95  | 9,97  | 9,99  | 10,01 | 10,03 | 10,05 | 10,07 | 10,10 | 10,12 |
| 1,8          | 9,80  | 9,82  | 9,85  | 9,87  | 9,89  | 9,92  | 9,94  | 9,96  | 9,99  | 10,01 | 10,04 | 10,06 | 10,08 | 10,11 | 10,13 |
| 1,9          | 9,77  | 9,80  | 9,83  | 9,85  | 9,88  | 9,91  | 9,93  | 9,96  | 9,99  | 10,01 | 10,04 | 10,06 | 10,09 | 10,12 | 10,15 |



TABLE LV.

Horary Motion in Longitude.

Equation XXVIII, First Part. Argument XXVIII.

|    | O <sup>s</sup> .<br>VI. | Diff. | I <sup>s</sup> .<br>VII. | Diff. | II <sup>s</sup> .<br>VIII. | Diff. | III <sup>s</sup> .<br>IX. | Diff. | IV <sup>s</sup> .<br>X. | Diff. | V <sup>s</sup> .<br>XI. | Diff. |
|----|-------------------------|-------|--------------------------|-------|----------------------------|-------|---------------------------|-------|-------------------------|-------|-------------------------|-------|
| 0  | "                       |       | "                        |       | "                          |       | "                         |       | "                       |       | "                       |       |
| 0  | 0,17                    | 0,01  | 4,09                     | 0,24  | 11,91                      | 0,23  | 15,83                     | 0,01  | 11,91                   | 0,24  | 4,09                    | 0,23  |
| 1  | 0,18                    | 0,01  | 4,33                     | 0,24  | 12,14                      | 0,23  | 15,82                     | 0,01  | 11,67                   | 0,24  | 3,86                    | 0,23  |
| 2  | 0,19                    | 0,02  | 4,57                     | 0,25  | 12,37                      | 0,23  | 15,81                     | 0,02  | 11,43                   | 0,25  | 3,63                    | 0,23  |
| 3  | 0,21                    | 0,04  | 4,82                     | 0,25  | 12,60                      | 0,22  | 15,79                     | 0,04  | 11,18                   | 0,25  | 3,40                    | 0,22  |
| 4  | 0,25                    | 0,04  | 5,07                     | 0,25  | 12,82                      | 0,21  | 15,75                     | 0,04  | 10,93                   | 0,25  | 3,18                    | 0,21  |
| 5  | 0,29                    |       | 5,32                     |       | 13,03                      |       | 15,71                     |       | 10,68                   |       | 2,97                    |       |
|    |                         | 0,05  |                          | 0,26  |                            | 0,21  |                           | 0,05  |                         | 0,26  |                         | 0,21  |
| 6  | 0,34                    | 0,07  | 5,58                     | 0,26  | 13,24                      | 0,20  | 15,66                     | 0,07  | 10,42                   | 0,26  | 2,76                    | 0,20  |
| 7  | 0,41                    | 0,07  | 5,84                     | 0,27  | 13,44                      | 0,19  | 15,59                     | 0,07  | 10,16                   | 0,27  | 2,56                    | 0,19  |
| 8  | 0,48                    | 0,08  | 6,11                     | 0,26  | 13,63                      | 0,19  | 15,52                     | 0,08  | 9,89                    | 0,26  | 2,37                    | 0,19  |
| 9  | 0,56                    | 0,09  | 6,37                     | 0,27  | 13,82                      | 0,18  | 15,44                     | 0,09  | 9,63                    | 0,27  | 2,18                    | 0,18  |
| 10 | 0,65                    |       | 6,64                     |       | 14,00                      |       | 15,35                     |       | 9,36                    |       | 2,00                    |       |
|    |                         | 0,10  |                          | 0,27  |                            | 0,17  |                           | 0,10  |                         | 0,27  |                         | 0,17  |
| 11 | 0,75                    | 0,10  | 6,91                     | 0,27  | 14,17                      | 0,17  | 15,25                     | 0,12  | 9,09                    | 0,27  | 1,83                    | 0,17  |
| 12 | 0,85                    | 0,12  | 7,18                     | 0,28  | 14,34                      | 0,15  | 15,15                     | 0,10  | 8,82                    | 0,28  | 1,66                    | 0,15  |
| 13 | 0,97                    | 0,12  | 7,46                     | 0,27  | 14,49                      | 0,15  | 15,03                     | 0,12  | 8,54                    | 0,27  | 1,51                    | 0,15  |
| 14 | 1,09                    | 0,13  | 7,73                     | 0,27  | 14,64                      | 0,14  | 14,91                     | 0,13  | 8,27                    | 0,27  | 1,36                    | 0,14  |
| 15 | 1,22                    |       | 8,00                     |       | 14,78                      |       | 14,78                     |       | 8,00                    |       | 1,22                    |       |
|    |                         | 0,14  |                          | 0,27  |                            | 0,13  |                           | 0,14  |                         | 0,27  |                         | 0,13  |
| 16 | 1,36                    | 0,15  | 8,27                     | 0,27  | 14,91                      | 0,12  | 14,64                     | 0,15  | 7,73                    | 0,27  | 1,09                    | 0,12  |
| 17 | 1,51                    | 0,15  | 8,54                     | 0,28  | 15,03                      | 0,12  | 14,49                     | 0,15  | 7,46                    | 0,28  | 0,97                    | 0,12  |
| 18 | 1,66                    | 0,17  | 8,82                     | 0,27  | 15,15                      | 0,10  | 14,34                     | 0,17  | 7,18                    | 0,27  | 0,85                    | 0,10  |
| 19 | 1,83                    | 0,17  | 9,09                     | 0,27  | 15,25                      | 0,10  | 14,17                     | 0,17  | 6,91                    | 0,27  | 0,75                    | 0,10  |
| 20 | 2,00                    |       | 9,36                     |       | 15,35                      |       | 14,00                     |       | 6,64                    |       | 0,65                    |       |
|    |                         | 0,18  |                          | 0,27  |                            | 0,09  |                           | 0,18  |                         | 0,27  |                         | 0,09  |
| 21 | 2,18                    | 0,19  | 9,63                     | 0,26  | 15,44                      | 0,08  | 13,82                     | 0,19  | 6,37                    | 0,26  | 0,56                    | 0,08  |
| 22 | 2,37                    | 0,19  | 9,89                     | 0,27  | 15,52                      | 0,07  | 13,63                     | 0,19  | 6,11                    | 0,27  | 0,48                    | 0,07  |
| 23 | 2,56                    | 0,20  | 10,16                    | 0,26  | 15,59                      | 0,07  | 13,44                     | 0,20  | 5,84                    | 0,26  | 0,41                    | 0,07  |
| 24 | 2,76                    | 0,21  | 10,42                    | 0,26  | 15,66                      | 0,05  | 13,24                     | 0,21  | 5,58                    | 0,26  | 0,34                    | 0,05  |
| 25 | 2,97                    |       | 10,68                    |       | 15,71                      |       | 13,03                     |       | 5,32                    |       | 0,29                    |       |
|    |                         | 0,21  |                          | 0,25  |                            | 0,04  |                           | 0,21  |                         | 0,25  |                         | 0,04  |
| 26 | 3,18                    | 0,22  | 10,93                    | 0,25  | 15,75                      | 0,04  | 12,82                     | 0,22  | 5,07                    | 0,25  | 0,25                    | 0,04  |
| 27 | 3,40                    | 0,23  | 11,18                    | 0,25  | 15,79                      | 0,02  | 12,60                     | 0,23  | 4,82                    | 0,25  | 0,21                    | 0,02  |
| 28 | 3,63                    | 0,23  | 11,43                    | 0,24  | 15,81                      | 0,01  | 12,37                     | 0,23  | 4,57                    | 0,24  | 0,19                    | 0,01  |
| 29 | 3,86                    |       | 11,67                    |       | 15,82                      |       | 12,14                     |       | 4,33                    |       | 0,18                    |       |
| 30 | 4,09                    |       | 11,91                    |       | 15,83                      |       | 11,91                     |       | 4,09                    |       | 0,17                    |       |



TABLE LVI.

Equation XXVIII, Second Part. Always Subtractive.

ARGUMENT. Equation XXVIII, and the Sum of all the preceding Equations.

|                  | 0"    | 1"    | 2"    | 3"    | 4"    | 5"    | 6"    | 7"    | 8"    | Diff.<br>for 1" |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|
|                  | —     | —     | —     | —     | —     | —     | —     | —     | —     | +               |
| 25. 0            | 8,05  | 8,29  | 8,54  | 8,78  | 9,02  | 9,27  | 9,51  | 9,76  | 10,00 | 0,24            |
| 25. 20           | 8,13  | 8,36  | 8,60  | 8,83  | 9,06  | 9,30  | 9,53  | 9,77  | 10,00 | 0,23            |
| 25. 40           | 8,21  | 8,43  | 8,66  | 8,88  | 9,10  | 9,33  | 9,55  | 9,78  | 10,00 | 0,22            |
| 26. 0            | 8,29  | 8,50  | 8,72  | 8,93  | 9,14  | 9,36  | 9,57  | 9,79  | 10,00 | 0,21            |
| 26. 20           | 8,37  | 8,57  | 8,78  | 8,98  | 9,18  | 9,39  | 9,59  | 9,80  | 10,00 | 0,20            |
| 26. 40           | 8,45  | 8,65  | 8,84  | 9,03  | 9,23  | 9,42  | 9,61  | 9,81  | 10,00 | 0,19            |
| 27. 0            | 8,53  | 8,73  | 8,90  | 9,08  | 9,27  | 9,45  | 9,63  | 9,82  | 10,00 | 0,18            |
| 27. 20           | 8,61  | 8,79  | 8,96  | 9,13  | 9,31  | 9,48  | 9,65  | 9,83  | 10,00 | 0,17            |
| 27. 40           | 8,69  | 8,86  | 9,02  | 9,18  | 9,35  | 9,51  | 9,67  | 9,84  | 10,00 | 0,16            |
| 28. 0            | 8,77  | 8,93  | 9,08  | 9,23  | 9,39  | 9,54  | 9,69  | 9,85  | 10,00 | 0,15            |
| 28. 20           | 8,85  | 9,00  | 9,14  | 9,28  | 9,43  | 9,57  | 9,71  | 9,86  | 10,00 | 0,14            |
| 28. 40           | 8,93  | 9,07  | 9,20  | 9,33  | 9,47  | 9,60  | 9,73  | 9,87  | 10,00 | 0,13            |
| 29. 0            | 9,01  | 9,14  | 9,26  | 9,38  | 9,51  | 9,63  | 9,75  | 9,88  | 10,00 | 0,12            |
| 29. 20           | 9,10  | 9,21  | 9,32  | 9,43  | 9,55  | 9,66  | 9,77  | 9,89  | 10,00 | 0,11            |
| 29. 40           | 9,18  | 9,28  | 9,38  | 9,48  | 9,59  | 9,69  | 9,79  | 9,90  | 10,00 | 0,10            |
| 30. 0            | 9,26  | 9,35  | 9,44  | 9,54  | 9,63  | 9,72  | 9,81  | 9,91  | 10,00 | 0,09            |
| 30. 20           | 9,34  | 9,42  | 9,50  | 9,59  | 9,67  | 9,75  | 9,83  | 9,92  | 10,00 | 0,08            |
| 30. 40           | 9,42  | 9,49  | 9,56  | 9,64  | 9,71  | 9,78  | 9,85  | 9,93  | 10,00 | 0,07            |
| 31. 0            | 9,50  | 9,56  | 9,62  | 9,69  | 9,75  | 9,81  | 9,87  | 9,94  | 10,00 | 0,06            |
| 31. 20           | 9,58  | 9,63  | 9,68  | 9,74  | 9,79  | 9,84  | 9,89  | 9,95  | 10,00 | 0,05            |
| 31. 40           | 9,66  | 9,70  | 9,74  | 9,79  | 9,83  | 9,87  | 9,91  | 9,96  | 10,00 | 0,04            |
| 32. 0            | 9,74  | 9,77  | 9,80  | 9,84  | 9,87  | 9,90  | 9,93  | 9,97  | 10,00 | 0,03            |
| 32. 20           | 9,82  | 9,84  | 9,87  | 9,89  | 9,91  | 9,93  | 9,96  | 9,98  | 10,00 | 0,02            |
| 32. 40           | 9,90  | 9,91  | 9,93  | 9,94  | 9,95  | 9,96  | 9,98  | 9,99  | 10,00 | 0,01            |
| 33. 0            | 9,98  | 9,98  | 9,99  | 9,99  | 9,99  | 9,99  | 10,00 | 10,00 | 10,00 | 0,00            |
| 33. 20           | 10,06 | 10,06 | 10,05 | 10,04 | 10,03 | 10,02 | 10,02 | 10,01 | 10,00 | 0,01            |
| 33. 40           | 10,14 | 10,13 | 10,11 | 10,09 | 10,07 | 10,05 | 10,04 | 10,02 | 10,00 | 0,02            |
| 34. 0            | 10,22 | 10,19 | 10,17 | 10,14 | 10,11 | 10,08 | 10,06 | 10,03 | 10,00 | 0,03            |
| 34. 20           | 10,30 | 10,26 | 10,23 | 10,19 | 10,15 | 10,11 | 10,08 | 10,04 | 10,00 | 0,04            |
| 34. 40           | 10,38 | 10,34 | 10,29 | 10,24 | 10,19 | 10,14 | 10,10 | 10,05 | 10,00 | 0,05            |
| 35. 0            | 10,47 | 10,41 | 10,35 | 10,29 | 10,23 | 10,17 | 10,12 | 10,06 | 10,00 | 0,06            |
| 35. 20           | 10,55 | 10,48 | 10,41 | 10,34 | 10,27 | 10,20 | 10,14 | 10,07 | 10,00 | 0,07            |
| 35. 40           | 10,63 | 10,55 | 10,48 | 10,39 | 10,31 | 10,24 | 10,16 | 10,08 | 10,00 | 0,08            |
| 36. 0            | 10,71 | 10,62 | 10,53 | 10,44 | 10,35 | 10,27 | 10,18 | 10,09 | 10,00 | 0,09            |
| 36. 20           | 10,79 | 10,69 | 10,59 | 10,49 | 10,39 | 10,30 | 10,20 | 10,10 | 10,00 | 0,10            |
| 36. 40           | 10,87 | 10,76 | 10,65 | 10,54 | 10,43 | 10,33 | 10,22 | 10,11 | 10,00 | 0,11            |
| 37. 0            | 10,95 | 10,83 | 10,71 | 10,59 | 10,47 | 10,36 | 10,24 | 10,12 | 10,00 | 0,12            |
| 37. 20           | 11,03 | 10,90 | 10,77 | 10,64 | 10,52 | 10,39 | 10,26 | 10,13 | 10,00 | 0,13            |
| 37. 40           | 11,11 | 10,97 | 10,83 | 10,69 | 10,56 | 10,42 | 10,28 | 10,14 | 10,00 | 0,14            |
| 38. 0            | 11,19 | 11,04 | 10,89 | 10,74 | 10,60 | 10,45 | 10,30 | 10,15 | 10,00 | 0,15            |
| 38. 20           | 11,27 | 11,11 | 10,95 | 10,79 | 10,64 | 10,48 | 10,32 | 10,16 | 10,00 | 0,16            |
| 38. 40           | 11,35 | 11,18 | 11,01 | 10,84 | 10,68 | 10,51 | 10,34 | 10,17 | 10,00 | 0,17            |
| 39. 0            | 11,43 | 11,25 | 11,07 | 10,90 | 10,72 | 10,54 | 10,36 | 10,18 | 10,00 | 0,18            |
| Diff.<br>for 20" | 8     | 7     | 6     | 5     | 4     | 3     | 2     | 1     | 0     |                 |



## Continuation of TABLE LVI.

Equation XXVIII, Second Part. Always Subtractive.

ARGUMENT. Equation XXVIII, and the Sum of all the preceding Equations.

|                  | 9"    | 10"   | 11"   | 12"   | 13"   | 14"   | 15"   | 16"   | Diff.<br>for 1"<br>+ |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
|                  | —     | —     | —     | —     | —     | —     | —     | —     | +                    |
| 25. 0            | 10,24 | 10,49 | 10,75 | 10,98 | 11,22 | 11,46 | 11,72 | 11,95 | 0,24                 |
| 25. 20           | 10,23 | 10,47 | 10,70 | 10,94 | 11,17 | 11,40 | 11,64 | 11,87 | 0,23                 |
| 25. 40           | 10,22 | 10,45 | 10,67 | 10,90 | 11,12 | 11,34 | 11,57 | 11,79 | 0,22                 |
| 26. 0            | 10,21 | 10,43 | 10,64 | 10,86 | 11,07 | 11,28 | 11,50 | 11,70 | 0,21                 |
| 26. 20           | 10,20 | 10,41 | 10,61 | 10,82 | 11,02 | 11,22 | 11,43 | 11,63 | 0,20                 |
| 26. 40           | 10,19 | 10,39 | 10,58 | 10,77 | 10,97 | 11,16 | 11,36 | 11,55 | 0,19                 |
| 27. 0            | 10,18 | 10,37 | 10,55 | 10,73 | 10,92 | 11,10 | 11,29 | 11,47 | 0,18                 |
| 27. 20           | 10,17 | 10,35 | 10,52 | 10,69 | 10,87 | 11,04 | 11,21 | 11,39 | 0,17                 |
| 27. 40           | 10,16 | 10,33 | 10,49 | 10,65 | 10,82 | 10,98 | 11,14 | 11,31 | 0,16                 |
| 28. 0            | 10,15 | 10,31 | 10,46 | 10,61 | 10,77 | 10,92 | 11,07 | 11,23 | 0,15                 |
| 28. 20           | 10,14 | 10,29 | 10,43 | 10,57 | 10,72 | 10,86 | 11,00 | 11,15 | 0,14                 |
| 28. 40           | 10,13 | 10,27 | 10,40 | 10,53 | 10,67 | 10,80 | 10,93 | 11,07 | 0,13                 |
| 29. 0            | 10,12 | 10,25 | 10,37 | 10,50 | 10,62 | 10,74 | 10,86 | 10,99 | 0,12                 |
| 29. 20           | 10,11 | 10,23 | 10,34 | 10,45 | 10,57 | 10,68 | 10,79 | 10,90 | 0,11                 |
| 29. 40           | 10,10 | 10,21 | 10,31 | 10,41 | 10,51 | 10,62 | 10,72 | 10,82 | 0,10                 |
| 30. 0            | 10,09 | 10,19 | 10,28 | 10,37 | 10,46 | 10,56 | 10,65 | 10,74 | 0,09                 |
| 30. 20           | 10,08 | 10,17 | 10,25 | 10,33 | 10,41 | 10,50 | 10,58 | 10,66 | 0,08                 |
| 30. 40           | 10,07 | 10,15 | 10,22 | 10,29 | 10,36 | 10,44 | 10,51 | 10,58 | 0,07                 |
| 31. 0            | 10,06 | 10,13 | 10,19 | 10,25 | 10,31 | 10,38 | 10,44 | 10,50 | 0,06                 |
| 31. 20           | 10,05 | 10,11 | 10,16 | 10,21 | 10,26 | 10,32 | 10,37 | 10,42 | 0,05                 |
| 31. 40           | 10,04 | 10,09 | 10,13 | 10,17 | 10,21 | 10,26 | 10,30 | 10,34 | 0,04                 |
| 32. 0            | 10,03 | 10,06 | 10,10 | 10,13 | 10,16 | 10,19 | 10,23 | 10,26 | 0,03                 |
| 32. 20           | 10,02 | 10,04 | 10,07 | 10,09 | 10,11 | 10,13 | 10,16 | 10,18 | 0,02                 |
| 32. 40           | 10,01 | 10,02 | 10,04 | 10,05 | 10,06 | 10,07 | 10,09 | 10,10 | 0,01                 |
| 33. 0            | 10,00 | 10,00 | 10,01 | 10,01 | 10,01 | 10,01 | 10,01 | 10,02 | 0,00                 |
| 33. 20           | 9,99  | 9,98  | 9,98  | 9,97  | 9,96  | 9,95  | 9,94  | 9,94  | 0,01                 |
| 33. 40           | 9,98  | 9,96  | 9,95  | 9,93  | 9,91  | 9,89  | 9,87  | 9,86  | 0,02                 |
| 34. 0            | 9,97  | 9,94  | 9,92  | 9,89  | 9,86  | 9,83  | 9,80  | 9,78  | 0,03                 |
| 34. 20           | 9,96  | 9,92  | 9,89  | 9,85  | 9,81  | 9,77  | 9,73  | 9,70  | 0,04                 |
| 34. 40           | 9,95  | 9,90  | 9,86  | 9,81  | 9,76  | 9,71  | 9,66  | 9,62  | 0,05                 |
| 35. 0            | 9,94  | 9,88  | 9,83  | 9,77  | 9,71  | 9,65  | 9,59  | 9,53  | 0,06                 |
| 35. 20           | 9,93  | 9,86  | 9,80  | 9,73  | 9,66  | 9,59  | 9,52  | 9,45  | 0,07                 |
| 35. 40           | 9,92  | 9,84  | 9,77  | 9,70  | 9,62  | 9,54  | 9,45  | 9,38  | 0,08                 |
| 36. 0            | 9,91  | 9,82  | 9,73  | 9,65  | 9,56  | 9,47  | 9,38  | 9,29  | 0,09                 |
| 36. 20           | 9,90  | 9,80  | 9,70  | 9,61  | 9,51  | 9,41  | 9,31  | 9,22  | 0,10                 |
| 36. 40           | 9,89  | 9,78  | 9,67  | 9,57  | 9,46  | 9,35  | 9,24  | 9,13  | 0,11                 |
| 37. 0            | 9,88  | 9,76  | 9,65  | 9,53  | 9,41  | 9,29  | 9,17  | 9,05  | 0,12                 |
| 37. 20           | 9,87  | 9,74  | 9,61  | 9,48  | 9,36  | 9,23  | 9,10  | 8,97  | 0,13                 |
| 37. 40           | 9,86  | 9,72  | 9,58  | 9,44  | 9,31  | 9,17  | 9,03  | 8,89  | 0,14                 |
| 38. 0            | 9,85  | 9,70  | 9,55  | 9,40  | 9,26  | 9,11  | 8,96  | 8,81  | 0,15                 |
| 38. 20           | 9,84  | 9,68  | 9,52  | 9,36  | 9,20  | 9,05  | 8,89  | 8,73  | 0,16                 |
| 38. 40           | 9,83  | 9,66  | 9,49  | 9,32  | 9,15  | 8,99  | 8,82  | 8,65  | 0,17                 |
| 39. 0            | 9,82  | 9,64  | 9,46  | 9,28  | 9,10  | 8,93  | 8,75  | 8,57  | 0,18                 |
| Diff.<br>for 20" | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |                      |



TABLE LVII.

Horary Motion in Longitude. Equations of the Second Order.

Small Equations.

| Arguments.           | IV.   | VII.  | IX.   | X.    | XI.   | XIII. | XIV.  | XV.   | XX.   |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <sup>s</sup><br>O. 0 | 0,003 | 0,021 | 0,002 | 0,009 | 0,011 | 0,005 | 0,001 | 0,001 | 0,003 |
| 10                   | 0,004 | 0,025 | 0,002 | 0,007 | 0,009 | 0,004 | 0,001 | 0,001 | 0,004 |
| 20                   | 0,005 | 0,028 | 0,001 | 0,006 | 0,007 | 0,003 | 0,001 | 0,001 | 0,004 |
| I. 0                 | 0,006 | 0,032 | 0,001 | 0,004 | 0,006 | 0,002 | 0,000 | 0,001 | 0,005 |
| 10                   | 0,006 | 0,035 | 0,001 | 0,003 | 0,004 | 0,002 | 0,000 | 0,002 | 0,005 |
| 20                   | 0,006 | 0,037 | 0,001 | 0,002 | 0,003 | 0,001 | 0,000 | 0,002 | 0,006 |
| II. 0                | 0,006 | 0,039 | 0,001 | 0,001 | 0,002 | 0,001 | 0,000 | 0,002 | 0,006 |
| 10                   | 0,005 | 0,041 | 0,001 | 0,000 | 0,001 | 0,000 | 0,000 | 0,002 | 0,006 |
| 20                   | 0,004 | 0,042 | 0,001 | 0,000 | 0,000 | 0,000 | 0,000 | 0,002 | 0,006 |
| III. 0               | 0,003 | 0,042 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,002 | 0,006 |
| 10                   | 0,002 | 0,042 | 0,001 | 0,000 | 0,000 | 0,000 | 0,000 | 0,002 | 0,006 |
| 20                   | 0,001 | 0,041 | 0,001 | 0,000 | 0,001 | 0,000 | 0,000 | 0,002 | 0,006 |
| IV. 0                | 0,000 | 0,039 | 0,001 | 0,001 | 0,002 | 0,001 | 0,000 | 0,002 | 0,006 |
| 10                   | 0,000 | 0,037 | 0,001 | 0,002 | 0,003 | 0,001 | 0,000 | 0,002 | 0,006 |
| 20                   | 0,000 | 0,035 | 0,001 | 0,003 | 0,004 | 0,002 | 0,000 | 0,002 | 0,005 |
| V. 0                 | 0,000 | 0,032 | 0,001 | 0,004 | 0,006 | 0,002 | 0,000 | 0,001 | 0,005 |
| 10                   | 0,001 | 0,028 | 0,001 | 0,006 | 0,007 | 0,003 | 0,001 | 0,001 | 0,004 |
| 20                   | 0,002 | 0,025 | 0,002 | 0,007 | 0,009 | 0,004 | 0,001 | 0,001 | 0,004 |
| VI. 0                | 0,003 | 0,021 | 0,002 | 0,009 | 0,011 | 0,005 | 0,001 | 0,001 | 0,003 |
| 10                   | 0,004 | 0,017 | 0,002 | 0,011 | 0,013 | 0,006 | 0,001 | 0,001 | 0,002 |
| 20                   | 0,005 | 0,014 | 0,003 | 0,012 | 0,015 | 0,007 | 0,001 | 0,001 | 0,002 |
| VII. 0               | 0,006 | 0,010 | 0,003 | 0,014 | 0,016 | 0,008 | 0,002 | 0,001 | 0,001 |
| 10                   | 0,006 | 0,007 | 0,003 | 0,015 | 0,018 | 0,008 | 0,002 | 0,000 | 0,001 |
| 20                   | 0,006 | 0,005 | 0,003 | 0,016 | 0,019 | 0,009 | 0,002 | 0,000 | 0,000 |
| VIII. 0              | 0,006 | 0,003 | 0,003 | 0,017 | 0,020 | 0,009 | 0,002 | 0,000 | 0,000 |
| 10                   | 0,005 | 0,001 | 0,003 | 0,018 | 0,021 | 0,010 | 0,002 | 0,000 | 0,000 |
| 20                   | 0,004 | 0,000 | 0,003 | 0,018 | 0,022 | 0,010 | 0,002 | 0,000 | 0,000 |
| IX. 0                | 0,003 | 0,000 | 0,004 | 0,018 | 0,022 | 0,010 | 0,002 | 0,000 | 0,000 |
| 10                   | 0,002 | 0,000 | 0,003 | 0,018 | 0,022 | 0,010 | 0,002 | 0,000 | 0,000 |
| 20                   | 0,001 | 0,001 | 0,003 | 0,018 | 0,021 | 0,010 | 0,002 | 0,000 | 0,000 |
| X. 0                 | 0,000 | 0,003 | 0,003 | 0,017 | 0,020 | 0,009 | 0,002 | 0,000 | 0,000 |
| 10                   | 0,000 | 0,005 | 0,003 | 0,016 | 0,019 | 0,009 | 0,002 | 0,000 | 0,000 |
| 20                   | 0,000 | 0,007 | 0,003 | 0,015 | 0,018 | 0,008 | 0,002 | 0,000 | 0,001 |
| XI. 0                | 0,000 | 0,010 | 0,003 | 0,014 | 0,016 | 0,008 | 0,002 | 0,001 | 0,001 |
| 10                   | 0,001 | 0,014 | 0,003 | 0,012 | 0,015 | 0,007 | 0,001 | 0,001 | 0,002 |
| 20                   | 0,002 | 0,017 | 0,002 | 0,011 | 0,013 | 0,006 | 0,001 | 0,001 | 0,002 |
| XII. 0               | 0,003 | 0,021 | 0,002 | 0,009 | 0,011 | 0,005 | 0,001 | 0,001 | 0,003 |

These little Equations require no correction. The sum of the twenty-four Equations of the First Order diminished by 54" and multiplied by  $m$ , is the correction. The number  $m=0,001043 \sin. \text{Arg. XXV. Arg. XXV}=\text{Equation XXV, second part.}$

To find the XVth Equation exact, you must add VI Signs to the XVth Argument.



## Continuation of TABLE LVII.

Horary Motion in Longitude. Equations of the Second Order.

| Evection, Excentricity, and Variation.             |     |      |       |                                                    |     |      |       | Last Equations.                           |        |         |
|----------------------------------------------------|-----|------|-------|----------------------------------------------------|-----|------|-------|-------------------------------------------|--------|---------|
| Arguments                                          | VI. | XXV. | XXVI. | Arguments                                          | VI. | XXV. | XXVI. | Arguments                                 | XXVII. | XXVIII. |
| <sup>s</sup><br>O.    0    0,164    1,048    0,396 |     |      |       | <sup>s</sup><br>VI.   0    0,164    1,048    0,396 |     |      |       | <sup>s</sup><br>O.    0    0,004    0,075 |        |         |
| 5    0,149    0,930    0,327                       |     |      |       | 5    0,177    1,116    0,325                       |     |      |       | 10    0,005    0,101                      |        |         |
| 10    0,134    0,814    0,258                      |     |      |       | 10    0,191    1,184    0,257                      |     |      |       | 20    0,005    0,123                      |        |         |
| 15    0,119    0,701    0,195                      |     |      |       | 15    0,204    1,252    0,194                      |     |      |       | 0    0,006    0,141                       |        |         |
| 20    0,105    0,593    0,139                      |     |      |       | 20    0,217    1,320    0,137                      |     |      |       | 10    0,007    0,149                      |        |         |
| 25    0,091    0,492    0,090                      |     |      |       | 25    0,229    1,386    0,088                      |     |      |       | 20    0,007    0,149                      |        |         |
| 0    0,078    0,398    0,052                       |     |      |       | 0    0,241    1,453    0,049                       |     |      |       | 0    0,007    0,138                       |        |         |
| 5    0,066    0,313    0,024                       |     |      |       | 5    0,253    1,517    0,021                       |     |      |       | 10    0,008    0,123                      |        |         |
| 10    0,054    0,238    0,009                      |     |      |       | 10    0,264    1,581    0,004                      |     |      |       | 20    0,008    0,101                      |        |         |
| 15    0,044    0,173    0,006                      |     |      |       | 15    0,275    1,643    0,000                      |     |      |       | 0    0,008    0,075                       |        |         |
| 20    0,034    0,118    0,015                      |     |      |       | 20    0,284    1,703    0,007                      |     |      |       | 10    0,008    0,049                      |        |         |
| 25    0,026    0,074    0,034                      |     |      |       | 25    0,293    1,761    0,026                      |     |      |       | 20    0,008    0,027                      |        |         |
| 0    0,018    0,041    0,065                       |     |      |       | 0    0,301    1,815    0,055                       |     |      |       | 0    0,007    0,010                       |        |         |
| 5    0,012    0,018    0,105                       |     |      |       | 5    0,308    1,866    0,095                       |     |      |       | 10    0,007    0,001                      |        |         |
| 10    0,007    0,004    0,155                      |     |      |       | 10    0,314    1,914    0,143                      |     |      |       | 20    0,007    0,001                      |        |         |
| 15    0,004    0,000    0,211                      |     |      |       | 15    0,319    1,958    0,198                      |     |      |       | 0    0,006    0,012                       |        |         |
| 20    0,002    0,005    0,272                      |     |      |       | 20    0,323    1,997    0,259                      |     |      |       | 10    0,005    0,027                      |        |         |
| 25    0,000    0,018    0,337                      |     |      |       | 25    0,326    2,030    0,323                      |     |      |       | 20    0,005    0,049                      |        |         |
| 0    0,001    0,039    0,403                       |     |      |       | 0    0,327    2,057    0,389                       |     |      |       | 0    0,004    0,075                       |        |         |
| 5    0,002    0,066    0,469                       |     |      |       | 5    0,328    2,078    0,455                       |     |      |       | 10    0,003    0,101                      |        |         |
| 10    0,005    0,099    0,533                      |     |      |       | 10    0,326    2,091    0,520                      |     |      |       | 20    0,003    0,123                      |        |         |
| 15    0,009    0,138    0,594                      |     |      |       | 15    0,324    2,096    0,581                      |     |      |       | 0    0,002    0,140                       |        |         |
| 20    0,014    0,182    0,649                      |     |      |       | 20    0,321    2,092    0,637                      |     |      |       | 10    0,001    0,149                      |        |         |
| 25    0,020    0,230    0,697                      |     |      |       | 25    0,316    2,078    0,687                      |     |      |       | 20    0,001    0,149                      |        |         |
| 0    0,027    0,281    0,737                       |     |      |       | 0    0,310    2,055    0,727                       |     |      |       | 0    0,001    0,140                       |        |         |
| 5    0,035    0,335    0,766                       |     |      |       | 5    0,302    2,022    0,758                       |     |      |       | 10    0,000    0,123                      |        |         |
| 10    0,044    0,393    0,785                      |     |      |       | 10    0,294    1,978    0,777                      |     |      |       | 20    0,000    0,101                      |        |         |
| 15    0,053    0,453    0,792                      |     |      |       | 15    0,284    1,923    0,786                      |     |      |       | 0    0,000    0,075                       |        |         |
| 20    0,064    0,515    0,788                      |     |      |       | 20    0,274    1,858    0,783                      |     |      |       | 10    0,000    0,049                      |        |         |
| 25    0,075    0,579    0,771                      |     |      |       | 25    0,262    1,783    0,768                      |     |      |       | 20    0,000    0,027                      |        |         |
| 0    0,087    0,643    0,743                       |     |      |       | 0    0,250    1,698    0,740                       |     |      |       | 0    0,001    0,010                       |        |         |
| 5    0,099    0,710    0,704                       |     |      |       | 5    0,237    1,604    0,702                       |     |      |       | 10    0,001    0,001                      |        |         |
| 10    0,110    0,776    0,655                      |     |      |       | 10    0,223    1,503    0,653                      |     |      |       | 20    0,001    0,001                      |        |         |
| 15    0,124    0,844    0,598                      |     |      |       | 15    0,209    1,395    0,597                      |     |      |       | 0    0,002    0,010                       |        |         |
| 20    0,137    0,912    0,535                      |     |      |       | 20    0,194    1,282    0,534                      |     |      |       | 10    0,003    0,027                      |        |         |
| 25    0,151    0,980    0,467                      |     |      |       | 25    0,179    1,166    0,467                      |     |      |       | 20    0,003    0,049                      |        |         |
| 0    0,164    1,048    0,396                       |     |      |       | 0    0,164    1,048    0,396                       |     |      |       | 0    0,004    0,075                       |        |         |
|                                                    |     |      |       |                                                    |     |      |       |                                           |        |         |



TABLE LVIII.

Equations of the Second Order. Equation XXV, Second Part.

ARGUMENTS. Sum of the twenty-four Equations of the First Order, and Argument XXV.

| Arg.<br>XXV. | Sum of the twenty-four Equations of the First Order. |       |       |       |       |       |       |       |       |       |       | Arg.<br>XXV. |
|--------------|------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|
|              | 0"                                                   | 10"   | 20"   | 30"   | 40"   | 50"   | 60"   | 70"   | 80"   | 90"   | 100"  |              |
| III. 0       | 0,108                                                | 0,098 | 0,088 | 0,078 | 0,068 | 0,058 | 0,048 | 0,038 | 0,028 | 0,018 | 0,008 | III. 0       |
| 10           | 0,107                                                | 0,097 | 0,087 | 0,078 | 0,068 | 0,058 | 0,048 | 0,038 | 0,028 | 0,018 | 0,009 | 10           |
| 20           | 0,105                                                | 0,095 | 0,086 | 0,077 | 0,067 | 0,058 | 0,048 | 0,039 | 0,030 | 0,020 | 0,011 | 20           |
| IV. 0        | 0,101                                                | 0,092 | 0,083 | 0,074 | 0,066 | 0,057 | 0,049 | 0,040 | 0,032 | 0,023 | 0,014 | II. 0        |
| 10           | 0,095                                                | 0,088 | 0,080 | 0,072 | 0,065 | 0,057 | 0,049 | 0,042 | 0,034 | 0,026 | 0,019 | 10           |
| 20           | 0,089                                                | 0,082 | 0,076 | 0,069 | 0,063 | 0,057 | 0,050 | 0,044 | 0,037 | 0,031 | 0,024 | 20           |
| V. 0         | 0,081                                                | 0,076 | 0,071 | 0,066 | 0,061 | 0,056 | 0,051 | 0,046 | 0,041 | 0,036 | 0,031 | I. 0         |
| 10           | 0,072                                                | 0,069 | 0,066 | 0,062 | 0,059 | 0,055 | 0,052 | 0,049 | 0,045 | 0,042 | 0,038 | 10           |
| 20           | 0,063                                                | 0,062 | 0,060 | 0,058 | 0,057 | 0,054 | 0,053 | 0,052 | 0,050 | 0,048 | 0,046 | 20           |
| VI. 0        | 0,054                                                | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | 0,054 | O. 0         |
| 10           | 0,045                                                | 0,046 | 0,048 | 0,050 | 0,051 | 0,054 | 0,055 | 0,056 | 0,058 | 0,060 | 0,062 | 20           |
| 20           | 0,036                                                | 0,039 | 0,042 | 0,046 | 0,049 | 0,053 | 0,056 | 0,059 | 0,063 | 0,066 | 0,070 | 10           |
| VII. 0       | 0,027                                                | 0,032 | 0,037 | 0,042 | 0,047 | 0,052 | 0,057 | 0,062 | 0,067 | 0,072 | 0,077 | XI. 0        |
| 10           | 0,019                                                | 0,026 | 0,032 | 0,039 | 0,045 | 0,051 | 0,058 | 0,064 | 0,071 | 0,077 | 0,084 | 20           |
| 20           | 0,013                                                | 0,020 | 0,028 | 0,036 | 0,043 | 0,051 | 0,059 | 0,066 | 0,074 | 0,082 | 0,089 | 10           |
| VIII. 0      | 0,007                                                | 0,016 | 0,025 | 0,034 | 0,042 | 0,051 | 0,059 | 0,068 | 0,076 | 0,085 | 0,094 | X. 0         |
| 10           | 0,003                                                | 0,013 | 0,022 | 0,031 | 0,041 | 0,050 | 0,060 | 0,069 | 0,078 | 0,088 | 0,097 | 20           |
| 20           | 0,001                                                | 0,011 | 0,021 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,080 | 0,090 | 0,099 | 10           |
| IX. 0        | 0,000                                                | 0,010 | 0,020 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,080 | 0,090 | 0,100 | IX. 0        |

TABLE LIX.

Equation XXVII, Second Part.

ARGUMENTS. Equation XXVI of the Second Order, and the Sum of the twenty-five first Equations.—Sun's True Horary Motion.

|    | 0",0  | 0",1  | 0",2  | 0",3  | 0",4  | 0",5  | 0",6  | 0",7  | 0",8  | Proportional Parts. |                |                |            |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------|----------------|----------------|------------|
|    |       |       |       |       |       |       |       |       |       | Hori-<br>zontal.    | Ver-<br>tical. | Ver-<br>tical. |            |
| 24 | 0,714 | 0,673 | 0,634 | 0,594 | 0,554 | 0,515 | 0,475 | 0,436 | 0,396 |                     |                |                |            |
| 25 | 0,688 | 0,648 | 0,609 | 0,569 | 0,530 | 0,490 | 0,450 | 0,411 | 0,371 |                     |                |                |            |
| 26 | 0,662 | 0,622 | 0,583 | 0,543 | 0,504 | 0,464 | 0,424 | 0,385 | 0,345 |                     |                |                |            |
| 27 | 0,635 | 0,595 | 0,555 | 0,516 | 0,477 | 0,437 | 0,397 | 0,358 | 0,318 | 0",01               | 0",004         | 3" 0",001      | 33" 0",014 |
| 28 | 0,609 | 0,569 | 0,530 | 0,489 | 0,450 | 0,410 | 0,370 | 0,331 | 0,292 | 0,02                | 0,008          | 6 0,003        | 36 0,016   |
| 29 | 0,583 | 0,543 | 0,504 | 0,464 | 0,425 | 0,385 | 0,345 | 0,306 | 0,266 | 0,03                | 0,012          | 9 0,004        | 39 0,017   |
| 30 | 0,557 | 0,517 | 0,478 | 0,438 | 0,399 | 0,359 | 0,319 | 0,280 | 0,240 | 0,04                | 0,016          | 12 0,005       | 42 0,018   |
| 31 | 0,530 | 0,490 | 0,451 | 0,411 | 0,372 | 0,332 | 0,292 | 0,253 | 0,213 | 0,05                | 0,020          | 15 0,006       | 45 0,020   |
| 32 | 0,503 | 0,463 | 0,425 | 0,385 | 0,346 | 0,306 | 0,267 | 0,227 | 0,187 | 0,06                | 0,024          | 18 0,008       | 48 0,021   |
| 33 | 0,476 | 0,436 | 0,397 | 0,357 | 0,318 | 0,280 | 0,240 | 0,200 | 0,160 | 0,07                | 0,028          | 21 0,009       | 51 0,022   |
| 34 | 0,449 | 0,409 | 0,369 | 0,330 | 0,291 | 0,251 | 0,211 | 0,173 | 0,132 | 0,08                | 0,032          | 24 0,010       | 54 0,023   |
| 35 | 0,422 | 0,382 | 0,342 | 0,303 | 0,264 | 0,224 | 0,184 | 0,145 | 0,105 | 0,09                | 0,036          | 27 0,011       | 57 0,025   |
| 36 | 0,395 | 0,355 | 0,315 | 0,276 | 0,237 | 0,197 | 0,157 | 0,118 | 0,078 |                     |                | 30 0,013       | 60 0,026   |
| 37 | 0,369 | 0,329 | 0,289 | 0,250 | 0,211 | 0,171 | 0,131 | 0,091 | 0,052 |                     |                |                |            |
| 38 | 0,342 | 0,302 | 0,262 | 0,223 | 0,184 | 0,144 | 0,104 | 0,064 | 0,025 |                     |                |                |            |



TABLE LX.

Equations of the Second Order. Equation XXVIII, First Part.

ARGUMENTS. Equation XXVII of the Second Order, and (the Sum of the 26 Equations of the First Order + Equation XXV + Equation XXVI - 31'. 12").

|    |        | 0",000 | 0",001 | 0",002 | 0",003 | 0",004 | 0",005 | 0",006 | 0",007 | 0",008 |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 25 | 0",000 | 0",000 | 0",001 | 0",001 | 0",002 | 0",002 | 0",003 | 0",003 | 0",004 | 0",004 |
| 26 | 0",000 | 0",001 | 0",001 | 0",002 | 0",002 | 0",002 | 0",003 | 0",003 | 0",003 | 0",004 |
| 27 | 0",000 | 0",001 | 0",001 | 0",002 | 0",002 | 0",002 | 0",003 | 0",003 | 0",003 | 0",004 |
| 28 | 0",000 | 0",001 | 0",001 | 0",002 | 0",002 | 0",002 | 0",003 | 0",003 | 0",003 | 0",003 |
| 29 | 0",000 | 0",001 | 0",001 | 0",002 | 0",002 | 0",002 | 0",003 | 0",003 | 0",003 | 0",003 |
| 30 | 0",000 | 0",001 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",003 | 0",003 | 0",003 |
| 31 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",003 |
| 32 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 |
| 33 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 |
| 34 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 |
| 35 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",001 |
| 36 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",001 |
| 37 | 0",000 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",002 | 0",001 | 0",001 |
| 38 | 0",000 | 0",003 | 0",003 | 0",002 | 0",002 | 0",002 | 0",001 | 0",001 | 0",001 | 0",001 |
| 39 | 0",000 | 0",003 | 0",003 | 0",002 | 0",002 | 0",001 | 0",001 | 0",001 | 0",001 | 0",001 |

TABLE LXI.

Equation XXVIII, Second Part.

ARGUMENTS. Equation XXVIII of the Second Order, Table LVII, and the Sum of the 27 first Equations of the First Order.

|    | 0",00 | 0",01 | 0",02 | 0",03 | 0",04 | 0",05 | 0",06 | 0",07 | 0",08 | 0",09 | 0",10 | 0",11 | 0",12 | 0",13 | 0",14 | 0",15 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 25 | 2,257 | 2,263 | 2,269 | 2,275 | 2,280 | 2,285 | 2,290 | 2,296 | 2,302 | 2,308 | 2,313 | 2,318 | 2,323 | 2,329 | 2,335 | 2,341 |
| 26 | 2,263 | 2,269 | 2,274 | 2,278 | 2,282 | 2,287 | 2,292 | 2,297 | 2,301 | 2,306 | 2,311 | 2,316 | 2,320 | 2,325 | 2,330 | 2,335 |
| 27 | 2,269 | 2,273 | 2,277 | 2,281 | 2,285 | 2,289 | 2,293 | 2,297 | 2,301 | 2,305 | 2,309 | 2,313 | 2,317 | 2,321 | 2,325 | 2,329 |
| 28 | 2,275 | 2,278 | 2,281 | 2,285 | 2,288 | 2,291 | 2,294 | 2,297 | 2,301 | 2,304 | 2,307 | 2,310 | 2,313 | 2,317 | 2,321 | 2,323 |
| 29 | 2,279 | 2,282 | 2,285 | 2,288 | 2,290 | 2,292 | 2,295 | 2,298 | 2,300 | 2,303 | 2,306 | 2,308 | 2,310 | 2,313 | 2,317 | 2,319 |
| 30 | 2,284 | 2,287 | 2,289 | 2,291 | 2,293 | 2,294 | 2,296 | 2,298 | 2,300 | 2,302 | 2,304 | 2,305 | 2,307 | 2,309 | 2,312 | 2,314 |
| 31 | 2,290 | 2,291 | 2,292 | 2,294 | 2,295 | 2,296 | 2,297 | 2,298 | 2,300 | 2,301 | 2,302 | 2,303 | 2,304 | 2,306 | 2,307 | 2,308 |
| 32 | 2,295 | 2,295 | 2,296 | 2,296 | 2,297 | 2,297 | 2,298 | 2,298 | 2,300 | 2,300 | 2,301 | 2,301 | 2,302 | 2,302 | 2,303 | 2,303 |
| 33 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 | 2,299 |
| 34 | 2,303 | 2,303 | 2,302 | 2,302 | 2,301 | 2,301 | 2,300 | 2,299 | 2,299 | 2,298 | 2,297 | 2,297 | 2,296 | 2,296 | 2,295 | 2,295 |
| 35 | 2,308 | 2,307 | 2,306 | 2,304 | 2,303 | 2,302 | 2,300 | 2,300 | 2,298 | 2,297 | 2,296 | 2,295 | 2,294 | 2,292 | 2,291 | 2,290 |
| 36 | 2,312 | 2,311 | 2,309 | 2,307 | 2,305 | 2,303 | 2,301 | 2,300 | 2,298 | 2,297 | 2,295 | 2,293 | 2,291 | 2,289 | 2,287 | 2,286 |
| 37 | 2,315 | 2,314 | 2,311 | 2,309 | 2,306 | 2,304 | 2,301 | 2,300 | 2,298 | 2,296 | 2,294 | 2,292 | 2,289 | 2,287 | 2,284 | 2,283 |
| 38 | 2,319 | 2,317 | 2,314 | 2,311 | 2,308 | 2,306 | 2,302 | 2,300 | 2,298 | 2,295 | 2,292 | 2,290 | 2,287 | 2,284 | 2,281 | 2,279 |
| 39 | 2,323 | 2,320 | 2,316 | 2,313 | 2,310 | 2,307 | 2,302 | 2,301 | 2,297 | 2,294 | 2,291 | 2,288 | 2,285 | 2,282 | 2,278 | 2,275 |

This Equation is always subtractive.



TABLE LXII.

Horary Motion in Latitude.

ARGUMENT I, of Latitude.

|    | O <sup>s</sup> +  |       | I <sup>s</sup> +   |       | II <sup>s</sup> +   |       |    |
|----|-------------------|-------|--------------------|-------|---------------------|-------|----|
|    | VI <sup>s</sup> — | Diff. | VII <sup>s</sup> — | Diff. | VIII <sup>s</sup> — | Diff. |    |
| °  |                   |       |                    |       |                     |       | °  |
| 0  | 2. 58,06          | "     | 2. 34,33           | "     | I. 29,24            | "     | 30 |
| 1  | 2. 58,03          | 0,03  | 2. 32,76           | 1,57  | I. 26,54            | 2,70  | 29 |
| 2  | 2. 57,95          | 0,08  | 2. 31,14           | 1,62  | I. 23,80            | 2,74  | 28 |
| 3  | 2. 57,81          | 0,14  | 2. 29,48           | 1,66  | I. 21,04            | 2,76  | 27 |
| 4  | 2. 57,62          | 0,19  | 2. 27,77           | 1,71  | I. 18,26            | 2,78  | 26 |
| 5  | 2. 57,38          | 0,24  | 2. 26,01           | 1,76  | I. 15,45            | 2,81  | 25 |
|    |                   | 0,30  |                    | 1,80  |                     | 2,83  |    |
| 6  | 2. 57,08          | 0,34  | 2. 24,21           | 1,84  | I. 12,62            | 2,86  | 24 |
| 7  | 2. 56,74          | 0,40  | 2. 22,37           | 1,89  | I. 9,76             | 2,87  | 23 |
| 8  | 2. 56,34          | 0,46  | 2. 20,48           | 1,93  | I. 6,89             | 2,90  | 22 |
| 9  | 2. 55,88          | 0,51  | 2. 18,55           | 1,97  | I. 3,99             | 2,92  | 21 |
| 10 | 2. 55,37          | 0,56  | 2. 16,58           | 2,01  | I. 1,07             | 2,94  | 20 |
|    |                   | 0,62  |                    | 2,06  |                     | 2,95  |    |
| 11 | 2. 54,81          | 0,67  | 2. 14,57           | 2,09  | O. 58,13            | 2,97  | 19 |
| 12 | 2. 54,19          | 0,72  | 2. 12,51           | 2,14  | O. 55,18            | 2,99  | 18 |
| 13 | 2. 53,52          | 0,77  | 2. 10,42           | 2,17  | O. 52,21            | 3,00  | 17 |
| 14 | 2. 52,80          | 0,83  | 2. 8,28            | 2,21  | O. 49,22            | 3,01  | 16 |
| 15 | 2. 52,03          | 0,88  | 2. 6,11            | 2,26  | O. 46,22            | 3,03  | 15 |
|    |                   | 0,93  |                    | 2,29  |                     | 3,04  |    |
| 16 | 2. 51,20          | 0,98  | 2. 3,90            | 2,32  | O. 43,21            | 3,06  | 14 |
| 17 | 2. 50,32          | 1,03  | 2. 1,64            | 2,36  | O. 40,18            | 3,06  | 13 |
| 18 | 2. 49,39          | 1,08  | I. 59,35           | 2,39  | O. 37,14            | 3,07  | 12 |
| 19 | 2. 48,41          | 1,13  | I. 57,03           | 2,43  | O. 34,08            | 3,09  | 11 |
| 20 | 2. 47,38          | 1,19  | I. 54,67           | 2,47  | O. 31,02            | 3,10  | 10 |
|    |                   | 1,23  |                    | 2,50  |                     | 3,10  |    |
| 21 | 2. 46,30          | 1,28  | I. 52,28           | 2,53  | O. 27,95            | 3,11  | 9  |
| 22 | 2. 45,17          | 1,33  | I. 49,85           | 2,56  | O. 24,86            | 3,11  | 8  |
| 23 | 2. 43,98          | 1,38  | I. 47,38           | 2,60  | O. 21,77            | 3,12  | 7  |
| 24 | 2. 42,75          | 1,43  | I. 44,88           | 2,62  | O. 18,67            | 3,12  | 6  |
| 25 | 2. 41,47          | 1,48  | I. 42,35           | 2,65  | O. 15,57            | 3,12  | 5  |
|    |                   | 1,52  |                    | 2,68  |                     | 3,12  |    |
| 26 | 2. 40,14          | 1,52  | I. 39,79           | 2,68  | O. 12,46            | 3,12  | 4  |
| 27 | 2. 38,76          | 1,52  | I. 37,19           | 2,68  | O. 9,35             | 3,12  | 3  |
| 28 | 2. 37,33          | 1,52  | I. 34,57           | 2,68  | O. 6,24             | 3,12  | 2  |
| 29 | 2. 35,85          | 1,52  | I. 31,92           | 2,68  | O. 3,12             | 3,12  | 1  |
| 30 | 2. 34,33          | 1,52  | I. 29,24           | 2,68  | O. 0, 0             | 3,12  | 0  |
|    |                   |       |                    |       |                     |       |    |
|    | XI <sup>s</sup> + |       | X <sup>s</sup> +   |       | IX <sup>s</sup> +   |       |    |
|    | V <sup>s</sup> —  |       | IV <sup>s</sup> —  |       | III <sup>s</sup> —  |       |    |

TABLE LXIII.

Horary Motion in Latitude.

ARGUMENT II, of Latitude.

|    | O <sup>s</sup> .  | I <sup>s</sup> . | II <sup>s</sup> . | III <sup>s</sup> .  | IV <sup>s</sup> .  | V <sup>s</sup> .  |    |
|----|-------------------|------------------|-------------------|---------------------|--------------------|-------------------|----|
| °  |                   |                  |                   |                     |                    |                   | °  |
| 0  | 8,59              | 8,02             | 6,45              | 4,30                | 2,15               | 0,58              | 30 |
| 1  | 8,59              | 7,98             | 6,39              | 4,22                | 2,08               | 0,54              | 29 |
| 2  | 8,58              | 7,94             | 6,33              | 4,15                | 2,02               | 0,50              | 28 |
| 3  | 8,58              | 7,90             | 6,27              | 4,08                | 1,96               | 0,46              | 27 |
| 4  | 8,57              | 7,86             | 6,20              | 4,00                | 1,90               | 0,43              | 26 |
| 5  | 8,57              | 7,81             | 6,13              | 3,93                | 1,84               | 0,40              | 25 |
|    |                   |                  |                   |                     |                    |                   |    |
| 6  | 8,56              | 7,77             | 6,06              | 3,86                | 1,78               | 0,37              | 24 |
| 7  | 8,55              | 7,72             | 5,99              | 3,78                | 1,72               | 0,34              | 23 |
| 8  | 8,54              | 7,68             | 5,92              | 3,71                | 1,66               | 0,31              | 22 |
| 9  | 8,53              | 7,65             | 5,86              | 3,63                | 1,60               | 0,28              | 21 |
| 10 | 8,52              | 7,58             | 5,79              | 3,56                | 1,54               | 0,26              | 20 |
|    |                   |                  |                   |                     |                    |                   |    |
| 11 | 8,51              | 7,53             | 5,72              | 3,48                | 1,49               | 0,23              | 19 |
| 12 | 8,50              | 7,48             | 5,65              | 3,40                | 1,44               | 0,21              | 18 |
| 13 | 8,48              | 7,43             | 5,57              | 3,32                | 1,38               | 0,19              | 17 |
| 14 | 8,47              | 7,38             | 5,50              | 3,25                | 1,32               | 0,17              | 16 |
| 15 | 8,45              | 7,33             | 5,42              | 3,18                | 1,27               | 0,15              | 15 |
|    |                   |                  |                   |                     |                    |                   |    |
| 16 | 8,43              | 7,28             | 5,35              | 3,10                | 1,22               | 0,13              | 14 |
| 17 | 8,41              | 7,22             | 5,28              | 3,03                | 1,17               | 0,12              | 13 |
| 18 | 8,39              | 7,16             | 5,20              | 2,95                | 1,12               | 0,10              | 12 |
| 19 | 8,37              | 7,11             | 5,12              | 2,88                | 1,07               | 0,09              | 11 |
| 20 | 8,34              | 7,06             | 5,04              | 2,81                | 1,02               | 0,08              | 10 |
|    |                   |                  |                   |                     |                    |                   |    |
| 21 | 8,32              | 7,00             | 4,97              | 2,74                | 0,97               | 0,07              | 9  |
| 22 | 8,29              | 6,94             | 4,89              | 2,68                | 0,92               | 0,06              | 8  |
| 23 | 8,26              | 6,88             | 4,82              | 2,61                | 0,88               | 0,05              | 7  |
| 24 | 8,23              | 6,82             | 4,74              | 2,54                | 0,83               | 0,04              | 6  |
| 25 | 8,20              | 6,76             | 4,67              | 2,47                | 0,79               | 0,03              | 5  |
|    |                   |                  |                   |                     |                    |                   |    |
| 26 | 8,17              | 6,70             | 4,60              | 2,40                | 0,74               | 0,03              | 4  |
| 27 | 8,14              | 6,64             | 4,52              | 2,33                | 0,70               | 0,02              | 3  |
| 28 | 8,10              | 6,58             | 4,45              | 2,27                | 0,66               | 0,02              | 2  |
| 29 | 8,06              | 6,52             | 4,38              | 2,21                | 0,62               | 0,01              | 1  |
| 30 | 8,02              | 6,45             | 4,30              | 2,15                | 0,58               | 0,01              | 0  |
|    |                   |                  |                   |                     |                    |                   |    |
|    | XI <sup>s</sup> . | X <sup>s</sup> . | IX <sup>s</sup> . | VIII <sup>s</sup> . | VII <sup>s</sup> . | VI <sup>s</sup> . |    |



TABLE LXIV.

Small Equations of the Horary Motion in Latitude.

ARGUMENTS of Latitude.

|                    |    | III. | V.   | VI.  | VII. | VIII. | IX.  | X.   | XI.  | XII. |
|--------------------|----|------|------|------|------|-------|------|------|------|------|
| <sup>s</sup><br>O. | 0  | "00  | "054 | "08  | "17  | "02   | "08  | "04  | "12  | "02  |
|                    | 5  | 0,00 | 0,54 | 0,08 | 0,17 | 0,02  | 0,08 | 0,04 | 0,12 | 0,02 |
|                    | 10 | 0,00 | 0,54 | 0,08 | 0,17 | 0,02  | 0,08 | 0,04 | 0,12 | 0,02 |
|                    | 15 | 0,00 | 0,53 | 0,07 | 0,16 | 0,02  | 0,07 | 0,04 | 0,11 | 0,03 |
|                    | 20 | 0,00 | 0,52 | 0,07 | 0,16 | 0,02  | 0,07 | 0,04 | 0,10 | 0,03 |
| I.                 | 25 | 0,00 | 0,51 | 0,07 | 0,16 | 0,02  | 0,07 | 0,04 | 0,10 | 0,03 |
|                    | 0  | 0,01 | 0,50 | 0,07 | 0,16 | 0,02  | 0,07 | 0,04 | 0,10 | 0,03 |
|                    | 5  | 0,01 | 0,49 | 0,07 | 0,15 | 0,02  | 0,07 | 0,04 | 0,10 | 0,04 |
|                    | 10 | 0,01 | 0,48 | 0,07 | 0,15 | 0,02  | 0,07 | 0,04 | 0,10 | 0,04 |
|                    | 15 | 0,01 | 0,47 | 0,07 | 0,14 | 0,02  | 0,07 | 0,04 | 0,10 | 0,05 |
|                    | 20 | 0,01 | 0,45 | 0,06 | 0,14 | 0,02  | 0,06 | 0,03 | 0,10 | 0,05 |
| II.                | 25 | 0,01 | 0,44 | 0,06 | 0,14 | 0,02  | 0,06 | 0,03 | 0,10 | 0,06 |
|                    | 0  | 0,02 | 0,42 | 0,06 | 0,13 | 0,02  | 0,06 | 0,03 | 0,09 | 0,06 |
|                    | 5  | 0,02 | 0,40 | 0,05 | 0,13 | 0,02  | 0,05 | 0,03 | 0,08 | 0,07 |
|                    | 10 | 0,02 | 0,38 | 0,05 | 0,13 | 0,02  | 0,05 | 0,03 | 0,08 | 0,07 |
|                    | 15 | 0,02 | 0,36 | 0,05 | 0,12 | 0,01  | 0,05 | 0,03 | 0,07 | 0,08 |
|                    | 20 | 0,03 | 0,34 | 0,05 | 0,11 | 0,01  | 0,05 | 0,02 | 0,07 | 0,09 |
| III.               | 25 | 0,03 | 0,32 | 0,04 | 0,11 | 0,01  | 0,04 | 0,02 | 0,06 | 0,09 |
|                    | 0  | 0,03 | 0,30 | 0,04 | 0,10 | 0,01  | 0,04 | 0,02 | 0,06 | 0,10 |
|                    | 5  | 0,03 | 0,28 | 0,04 | 0,09 | 0,01  | 0,04 | 0,02 | 0,06 | 0,11 |
|                    | 10 | 0,03 | 0,26 | 0,04 | 0,09 | 0,01  | 0,04 | 0,02 | 0,05 | 0,11 |
|                    | 15 | 0,04 | 0,24 | 0,03 | 0,08 | 0,01  | 0,03 | 0,01 | 0,05 | 0,12 |
|                    | 20 | 0,04 | 0,22 | 0,03 | 0,08 | 0,01  | 0,03 | 0,01 | 0,04 | 0,13 |
| IV.                | 25 | 0,04 | 0,20 | 0,03 | 0,07 | 0,00  | 0,03 | 0,01 | 0,04 | 0,13 |
|                    | 0  | 0,04 | 0,18 | 0,02 | 0,07 | 0,00  | 0,02 | 0,01 | 0,03 | 0,14 |
|                    | 5  | 0,05 | 0,16 | 0,02 | 0,06 | 0,00  | 0,02 | 0,01 | 0,03 | 0,14 |
|                    | 10 | 0,05 | 0,15 | 0,02 | 0,06 | 0,00  | 0,02 | 0,01 | 0,02 | 0,15 |
|                    | 15 | 0,05 | 0,13 | 0,01 | 0,06 | 0,00  | 0,01 | 0,00 | 0,02 | 0,15 |
|                    | 20 | 0,05 | 0,12 | 0,01 | 0,05 | 0,00  | 0,01 | 0,00 | 0,02 | 0,16 |
| V.                 | 25 | 0,05 | 0,11 | 0,01 | 0,05 | 0,00  | 0,01 | 0,00 | 0,01 | 0,16 |
|                    | 0  | 0,05 | 0,10 | 0,01 | 0,04 | 0,00  | 0,01 | 0,00 | 0,01 | 0,17 |
|                    | 5  | 0,06 | 0,09 | 0,01 | 0,04 | 0,00  | 0,01 | 0,00 | 0,01 | 0,17 |
|                    | 10 | 0,06 | 0,08 | 0,01 | 0,04 | 0,00  | 0,01 | 0,00 | 0,01 | 0,17 |
|                    | 15 | 0,06 | 0,07 | 0,01 | 0,04 | 0,00  | 0,01 | 0,00 | 0,01 | 0,17 |
|                    | 20 | 0,06 | 0,06 | 0,00 | 0,03 | 0,00  | 0,00 | 0,00 | 0,00 | 0,18 |
| VI.                | 25 | 0,06 | 0,06 | 0,00 | 0,03 | 0,00  | 0,00 | 0,00 | 0,00 | 0,18 |
|                    | 0  | 0,06 | 0,06 | 0,00 | 0,03 | 0,00  | 0,00 | 0,00 | 0,00 | 0,18 |

TABLE LXV.

Equations of the Second Order.

ARGUMENTS of Latitude.

| Arg. I. | Arg. II. |                        |
|---------|----------|------------------------|
| —       | —        |                        |
| "000    | "000     | <sup>s</sup><br>XII. 0 |
| 0,074   | 0,002    | 25                     |
| 0,148   | 0,003    | 20                     |
| 0,220   | 0,004    | 15                     |
| 0,291   | 0,006    | 10                     |
| 0,360   | 0,007    | 5                      |
| 0,426   | 0,009    | XI. 0                  |
| 0,490   | 0,010    | 25                     |
| 0,550   | 0,011    | 20                     |
| 0,605   | 0,012    | 15                     |
| 0,656   | 0,013    | 10                     |
| 0,702   | 0,014    | 5                      |
| 0,742   | 0,015    | X. 0                   |
| 0,777   | 0,016    | 25                     |
| 0,806   | 0,017    | 20                     |
| 0,829   | 0,017    | 15                     |
| 0,846   | 0,017    | 10                     |
| 0,856   | 0,017    | 5                      |
| 0,859   | 0,017    | IX. 0                  |
| 0,856   | 0,017    | 25                     |
| 0,846   | 0,017    | 20                     |
| 0,829   | 0,017    | 15                     |
| 0,806   | 0,017    | 10                     |
| 0,777   | 0,016    | 5                      |
| 0,742   | 0,015    | VIII. 0                |
| 0,702   | 0,014    | 25                     |
| 0,656   | 0,013    | 20                     |
| 0,605   | 0,012    | 15                     |
| 0,550   | 0,011    | 10                     |
| 0,490   | 0,010    | 5                      |
| 0,426   | 0,009    | VII. 0                 |
| 0,360   | 0,007    | 25                     |
| 0,291   | 0,006    | 20                     |
| 0,220   | 0,004    | 15                     |
| 0,148   | 0,003    | 10                     |
| 0,074   | 0,002    | 5                      |
| 0,000   | 0,000    | VI. 0                  |
| +       | +        |                        |



TABLE LXVI.

Horary Motion in Latitude.

ARGUMENT. True Motion in the Orbit, or the Sum of the 27 Equations diminished by 2".

| True Motion<br>in the<br>Orbit. | N.     | N <sup>2</sup> . | True Motion<br>in the<br>Orbit. | N.     | N <sup>2</sup> . | True Motion<br>in the<br>Orbit. | N.     | N <sup>2</sup> . |
|---------------------------------|--------|------------------|---------------------------------|--------|------------------|---------------------------------|--------|------------------|
| 25. 0                           | 0.7589 | 0.5760           | 30. 0                           | 0.9107 | 0.8294           | 35. 0                           | 1.0625 | 1.1288           |
| 10                              | 0.7640 | 0.5837           | 10                              | 0.9158 | 0.8387           | 10                              | 1.0676 | 1.1396           |
| 20                              | 0.7690 | 0.5914           | 20                              | 0.9208 | 0.8479           | 20                              | 1.0726 | 1.1504           |
| 30                              | 0.7741 | 0.5992           | 30                              | 0.9259 | 0.8573           | 30                              | 1.0777 | 1.1613           |
| 40                              | 0.7792 | 0.6071           | 40                              | 0.9309 | 0.8666           | 40                              | 1.0827 | 1.1723           |
| 50                              | 0.7842 | 0.6150           | 50                              | 0.9360 | 0.8761           | 50                              | 1.0878 | 1.1833           |
| 26. 0                           | 0.7893 | 0.6230           | 31. 0                           | 0.9411 | 0.8857           | 36. 0                           | 1.0929 | 1.1943           |
| 10                              | 0.7944 | 0.6310           | 10                              | 0.9461 | 0.8951           | 10                              | 1.0979 | 1.2055           |
| 20                              | 0.7994 | 0.6391           | 20                              | 0.9512 | 0.9046           | 20                              | 1.1030 | 1.2166           |
| 30                              | 0.8045 | 0.6472           | 30                              | 0.9562 | 0.9143           | 30                              | 1.1080 | 1.2277           |
| 40                              | 0.8095 | 0.6554           | 40                              | 0.9613 | 0.9241           | 40                              | 1.1131 | 1.2390           |
| 50                              | 0.8146 | 0.6636           | 50                              | 0.9664 | 0.9339           | 50                              | 1.1182 | 1.2503           |
| 27. 0                           | 0.8196 | 0.6718           | 32. 0                           | 0.9714 | 0.9436           | 37. 0                           | 1.1232 | 1.2615           |
| 10                              | 0.8247 | 0.6801           | 10                              | 0.9765 | 0.9534           | 10                              | 1.1283 | 1.2730           |
| 20                              | 0.8298 | 0.6885           | 20                              | 0.9815 | 0.9633           | 20                              | 1.1333 | 1.2844           |
| 30                              | 0.8348 | 0.6969           | 30                              | 0.9866 | 0.9734           | 30                              | 1.1384 | 1.2959           |
| 40                              | 0.8399 | 0.7054           | 40                              | 0.9917 | 0.9835           | 40                              | 1.1434 | 1.3074           |
| 50                              | 0.8449 | 0.7139           | 50                              | 0.9967 | 0.9935           | 50                              | 1.1485 | 1.3190           |
| 28. 0                           | 0.8500 | 0.7225           | 33. 0                           | 1.0018 | 1.0036           | 38. 0                           | 1.1536 | 1.3307           |
| 10                              | 0.8551 | 0.7312           | 10                              | 1.0068 | 1.0136           | 10                              | 1.1586 | 1.3424           |
| 20                              | 0.8601 | 0.7398           | 20                              | 1.0119 | 1.0239           | 20                              | 1.1637 | 1.3542           |
| 30                              | 0.8652 | 0.7486           | 30                              | 1.0170 | 1.0343           | 30                              | 1.1687 | 1.3658           |
| 40                              | 0.8702 | 0.7574           | 40                              | 1.0220 | 1.0445           | 40                              | 1.1738 | 1.3776           |
| 50                              | 0.8753 | 0.7662           | 50                              | 1.0271 | 1.0549           | 50                              | 1.1789 | 1.3896           |
| 29. 0                           | 0.8804 | 0.7751           | 34. 0                           | 1.0321 | 1.0653           | 39. 0                           | 1.1840 | 1.4018           |
| 10                              | 0.8854 | 0.7840           | 10                              | 1.0372 | 1.0758           |                                 |        |                  |
| 20                              | 0.8905 | 0.7930           | 20                              | 1.0423 | 1.0864           |                                 |        |                  |
| 30                              | 0.8955 | 0.8019           | 30                              | 1.0473 | 1.0969           |                                 |        |                  |
| 40                              | 0.9006 | 0.8111           | 40                              | 1.0524 | 1.1075           |                                 |        |                  |
| 50                              | 0.9057 | 0.8203           | 50                              | 1.0574 | 1.1180           |                                 |        |                  |
| 30. 0                           | 0.9107 | 0.8294           | 35. 0                           | 1.0625 | 1.1288           |                                 |        |                  |



## TABLES

*To facilitate the Calculations of the Observations of the Passage of the Moon over the Meridian.*

TABLE I.

Number of Seconds of the Lunar Disc which pass the Meridian in a Second of Sidereal Time, or the Number M.

ARGUMENTS. Declination, and Motion in Right Ascension for 24 Hours mean Solar Time.

| Declination. | 17°   | 16°   | 15°   | 14°   | 13°   | 12°   | 11°   | 10°   |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0            | "     | "     | "     | "     | "     | "     | "     | "     |
| 30           | 12,38 | 12,42 | 12,45 | 12,49 | 12,52 | 12,56 | 12,59 | 12,63 |
| 29           | 12,50 | 12,54 | 12,57 | 12,61 | 12,64 | 12,68 | 12,72 | 12,75 |
| 28           | 12,62 | 12,66 | 12,69 | 12,73 | 12,76 | 12,80 | 12,84 | 12,87 |
| 27           | 12,74 | 12,77 | 12,81 | 12,85 | 12,88 | 12,92 | 12,96 | 12,99 |
| 26           | 12,85 | 12,88 | 12,92 | 12,96 | 12,99 | 13,03 | 13,07 | 13,10 |
| 25           | 12,96 | 12,99 | 13,03 | 13,07 | 13,10 | 13,14 | 13,18 | 13,21 |
| 24           | 13,06 | 13,09 | 13,13 | 13,17 | 13,21 | 13,25 | 13,29 | 13,32 |
| 23           | 13,16 | 13,19 | 13,23 | 13,27 | 13,31 | 13,35 | 13,39 | 13,42 |
| 22           | 13,25 | 13,29 | 13,33 | 13,37 | 13,41 | 13,45 | 13,49 | 13,52 |
| 21           | 13,34 | 13,38 | 13,42 | 13,46 | 13,50 | 13,54 | 13,58 | 13,62 |
| 20           | 13,43 | 13,47 | 13,51 | 13,55 | 13,59 | 13,63 | 13,67 | 13,71 |
| 19           | 13,51 | 13,55 | 13,59 | 13,63 | 13,67 | 13,71 | 13,75 | 13,79 |
| 18           | 13,59 | 13,63 | 13,67 | 13,71 | 13,75 | 13,79 | 13,83 | 13,87 |
| 17           | 13,67 | 13,70 | 13,74 | 13,79 | 13,83 | 13,87 | 13,91 | 13,95 |
| 16           | 13,74 | 13,77 | 13,81 | 13,86 | 13,90 | 13,94 | 13,98 | 14,02 |
| 15           | 13,80 | 13,84 | 13,88 | 13,93 | 13,97 | 14,01 | 14,05 | 14,09 |
| 14           | 13,86 | 13,90 | 13,94 | 13,99 | 14,03 | 14,07 | 14,11 | 14,15 |
| 13           | 13,92 | 13,96 | 14,00 | 14,05 | 14,09 | 14,13 | 14,17 | 14,21 |
| 12           | 13,98 | 14,02 | 14,06 | 14,10 | 14,14 | 14,18 | 14,22 | 14,26 |
| 11           | 14,03 | 14,07 | 14,11 | 14,15 | 14,19 | 14,23 | 14,27 | 14,31 |
| 10           | 14,08 | 14,12 | 14,16 | 14,20 | 14,24 | 14,28 | 14,32 | 14,36 |
| 9            | 14,12 | 14,16 | 14,20 | 14,24 | 14,28 | 14,32 | 14,36 | 14,40 |
| 8            | 14,15 | 14,19 | 14,24 | 14,27 | 14,32 | 14,36 | 14,40 | 14,44 |
| 7            | 14,18 | 14,22 | 14,27 | 14,30 | 14,35 | 14,39 | 14,43 | 14,47 |
| 6            | 14,21 | 14,25 | 14,30 | 14,33 | 14,38 | 14,42 | 14,46 | 14,50 |
| 5            | 14,23 | 14,27 | 14,32 | 14,36 | 14,40 | 14,44 | 14,48 | 14,52 |
| 4            | 14,25 | 14,29 | 14,34 | 14,38 | 14,42 | 14,46 | 14,50 | 14,54 |
| 3            | 14,27 | 14,31 | 14,36 | 14,40 | 14,44 | 14,48 | 14,52 | 14,56 |
| 2            | 14,28 | 14,32 | 14,37 | 14,41 | 14,45 | 14,49 | 14,53 | 14,57 |
| 1            | 14,29 | 14,33 | 14,38 | 14,42 | 14,46 | 14,50 | 14,54 | 14,58 |
| 0            | 14,29 | 14,33 | 14,38 | 14,42 | 14,46 | 14,50 | 14,54 | 14,58 |



TABLE II.

Correction of the Distance of the Moon from the Zenith.

ARGUMENTS. Declination, and Number  $N = \frac{1}{2} \zeta \pm M (b-d)$ .

| (L-z)<br>or<br>Declination. | 1000" | 900" | 800" | 700" | 600" | 500" | 400" | 300" | 200" | 100" |
|-----------------------------|-------|------|------|------|------|------|------|------|------|------|
| 0                           | "     | "    | "    | "    | "    | "    | "    | "    | "    | "    |
| 30                          | 1,4   | 1,2  | 0,9  | 0,7  | 0,5  | 0,3  | 0,2  | 0,1  | 0,1  | 0,0  |
| 28                          | 1,3   | 1,1  | 0,8  | 0,6  | 0,5  | 0,3  | 0,2  | 0,1  | 0,1  | 0,0  |
| 26                          | 1,2   | 1,0  | 0,8  | 0,6  | 0,4  | 0,3  | 0,2  | 0,1  | 0,0  | 0,0  |
| 24                          | 1,1   | 0,9  | 0,7  | 0,5  | 0,4  | 0,3  | 0,2  | 0,1  | 0,0  | 0,0  |
| 22                          | 1,0   | 0,8  | 0,6  | 0,5  | 0,3  | 0,3  | 0,1  | 0,1  | 0,0  | 0,0  |
| 20                          | 0,9   | 0,7  | 0,6  | 0,4  | 0,3  | 0,2  | 0,1  | 0,1  | 0,0  | 0,0  |
| 18                          | 0,8   | 0,6  | 0,5  | 0,4  | 0,3  | 0,2  | 0,1  | 0,1  | 0,0  | 0,0  |
| 16                          | 0,7   | 0,6  | 0,5  | 0,3  | 0,2  | 0,2  | 0,1  | 0,1  | 0,0  | 0,0  |
| 14                          | 0,6   | 0,5  | 0,4  | 0,3  | 0,2  | 0,1  | 0,1  | 0,1  | 0,0  | 0,0  |
| 12                          | 0,5   | 0,4  | 0,3  | 0,3  | 0,2  | 0,1  | 0,1  | 0,0  | 0,0  | 0,0  |
| 10                          | 0,4   | 0,3  | 0,3  | 0,2  | 0,2  | 0,1  | 0,1  | 0,0  | 0,0  | 0,0  |
| 8                           | 0,3   | 0,3  | 0,2  | 0,2  | 0,1  | 0,1  | 0,1  | 0,0  | 0,0  | 0,0  |
| 6                           | 0,3   | 0,2  | 0,1  | 0,1  | 0,1  | 0,1  | 0,0  | 0,0  | 0,0  | 0,0  |
| 4                           | 0,2   | 0,1  | 0,1  | 0,1  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  |
| 2                           | 0,1   | 0,1  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  |
| 0                           | 0,0   | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  | 0,0  |

The Arguments of this Table are (L-z), or Latitude — observed zenith distance of the Moon; and  $N = \text{semid. } \zeta \pm M$  (Table preceding) multiplied by  $(b-d)$ ,  $b$  being the moment of the passage of the Limb at the middle wire,  $d$  the moment when the zenith distance was taken,  $(b-d)$  being expressed in seconds.

The Sign + if the *first* Limb be observed, and — if the *second*.

This Correction is always of a contrary Sign to the Declination observed, and the Declination will be always diminished.

The Number  $(b-d)$  will be negative, if the observation of the Zenith Distance follows that of the Limb.

The Table will serve for the Stars, Planets, and Sun, making  $M = 15 (b-d)$ ,  $b$  being the moment of the passage of the center of the Body over the Meridian.



TABLE III.

Semi-diameter of the Moon in Sidereal Time, supposing 1000" or 16'. 40"  
for the Horizontal Semi-diameter.

ARGUMENTS. Declination, and Motion in Right Ascension for 24 Hours mean Solar Time.

| Declination. | 17°  | 16°  | 15°  | 14°  | 13°  | 12°  | 11°  | 10°  |
|--------------|------|------|------|------|------|------|------|------|
| 0            | 80,8 | 80,5 | 80,3 | 80,1 | 79,9 | 79,6 | 79,4 | 79,2 |
| 30           | 80,0 | 79,7 | 79,5 | 79,3 | 79,1 | 78,9 | 78,7 | 78,4 |
| 29           | 79,2 | 79,0 | 78,8 | 78,6 | 78,3 | 78,1 | 78,0 | 77,7 |
| 28           | 78,5 | 78,3 | 78,1 | 77,9 | 77,6 | 77,4 | 77,2 | 77,0 |
| 27           | 77,8 | 77,6 | 77,4 | 77,2 | 77,0 | 76,7 | 76,5 | 76,3 |
| 26           | 77,2 | 77,0 | 76,8 | 76,5 | 76,3 | 76,1 | 75,9 | 75,7 |
| 25           |      |      |      |      |      |      |      |      |
| 24           | 76,6 | 76,4 | 76,2 | 75,9 | 75,7 | 75,5 | 75,3 | 75,1 |
| 23           | 76,0 | 75,8 | 75,6 | 75,4 | 75,1 | 74,9 | 74,7 | 74,5 |
| 22           | 75,5 | 75,2 | 75,0 | 74,8 | 74,6 | 74,4 | 74,1 | 74,0 |
| 21           | 75,0 | 74,7 | 74,5 | 74,3 | 74,1 | 73,9 | 73,6 | 73,4 |
| 20           | 74,5 | 74,2 | 74,0 | 73,8 | 73,6 | 73,4 | 73,1 | 72,9 |
| 19           |      |      |      |      |      |      |      |      |
| 18           | 74,0 | 73,8 | 73,6 | 73,4 | 73,1 | 72,9 | 72,7 | 72,5 |
| 17           | 73,6 | 73,4 | 73,2 | 72,9 | 72,7 | 72,5 | 72,3 | 72,1 |
| 16           | 73,2 | 73,0 | 72,8 | 72,5 | 72,3 | 72,1 | 71,9 | 71,7 |
| 15           | 72,8 | 72,6 | 72,4 | 72,1 | 71,9 | 71,7 | 71,5 | 71,3 |
| 14           | 72,4 | 72,3 | 72,1 | 71,8 | 71,6 | 71,4 | 71,2 | 71,0 |
| 13           |      |      |      |      |      |      |      |      |
| 12           | 72,1 | 71,9 | 71,7 | 71,5 | 71,3 | 71,1 | 70,9 | 70,7 |
| 11           | 71,8 | 71,6 | 71,4 | 71,2 | 71,0 | 70,8 | 70,6 | 70,4 |
| 10           | 71,5 | 71,3 | 71,1 | 70,9 | 70,7 | 70,5 | 70,3 | 70,1 |
| 9            | 71,2 | 71,1 | 70,9 | 70,7 | 70,5 | 70,3 | 70,1 | 69,9 |
| 8            | 71,0 | 70,8 | 70,6 | 70,4 | 70,2 | 70,0 | 69,8 | 69,6 |
| 7            |      |      |      |      |      |      |      |      |
| 6            | 70,8 | 70,6 | 70,4 | 70,2 | 70,0 | 69,8 | 69,6 | 69,4 |
| 5            | 70,6 | 70,5 | 70,2 | 70,1 | 69,8 | 69,6 | 69,4 | 69,2 |
| 4            | 70,5 | 70,3 | 70,1 | 69,9 | 69,7 | 69,5 | 69,3 | 69,1 |
| 3            | 70,4 | 70,2 | 69,9 | 69,7 | 69,5 | 69,4 | 69,2 | 69,0 |
| 2            | 70,3 | 70,1 | 69,8 | 69,6 | 69,4 | 69,3 | 69,1 | 68,9 |
| 1            |      |      |      |      |      |      |      |      |
| 0            | 70,2 | 70,0 | 69,7 | 69,5 | 69,3 | 69,2 | 69,0 | 68,8 |
|              | 70,1 | 69,9 | 69,6 | 69,4 | 69,2 | 69,1 | 68,9 | 68,7 |
|              | 70,0 | 69,8 | 69,6 | 69,4 | 69,2 | 69,0 | 68,8 | 68,6 |
|              | 70,0 | 69,8 | 69,5 | 69,3 | 69,2 | 69,0 | 68,8 | 68,6 |
|              | 70,0 | 69,8 | 69,5 | 69,3 | 69,2 | 69,0 | 68,8 | 68,6 |



TABLE IV.

Factors by which we must multiply the Equatorial Interval of the Wires of a Transit Telescope, to have the Time of the Moon's Passage from Wire to Wire.

ARGUMENTS. Horizontal Parallax, and the Number M taken from Table I.

Horizontal Parallax.

| M.    | 50'   | 53'   | 56'   | 59'   | 62'   | 65'   | 68'   |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 12,30 | 1,208 | 1,207 | 1,206 | 1,206 | 1,205 | 1,205 | 1,204 |
| 12,40 | 1,198 | 1,197 | 1,196 | 1,196 | 1,195 | 1,195 | 1,194 |
| 12,50 | 1,188 | 1,188 | 1,187 | 1,186 | 1,185 | 1,185 | 1,184 |
| 12,60 | 1,179 | 1,178 | 1,177 | 1,176 | 1,175 | 1,175 | 1,175 |
| 12,70 | 1,170 | 1,169 | 1,168 | 1,168 | 1,167 | 1,167 | 1,166 |
| 12,80 | 1,161 | 1,160 | 1,159 | 1,159 | 1,158 | 1,158 | 1,157 |
| 12,90 | 1,152 | 1,151 | 1,150 | 1,150 | 1,149 | 1,149 | 1,148 |
| 13,00 | 1,143 | 1,142 | 1,142 | 1,141 | 1,140 | 1,140 | 1,139 |
| 13,10 | 1,134 | 1,133 | 1,133 | 1,132 | 1,131 | 1,131 | 1,130 |
| 13,20 | 1,125 | 1,125 | 1,124 | 1,123 | 1,122 | 1,122 | 1,122 |
| 13,30 | 1,117 | 1,116 | 1,116 | 1,115 | 1,114 | 1,114 | 1,113 |
| 13,40 | 1,109 | 1,108 | 1,107 | 1,107 | 1,106 | 1,106 | 1,105 |
| 13,50 | 1,100 | 1,100 | 1,100 | 1,099 | 1,098 | 1,098 | 1,097 |
| 13,60 | 1,092 | 1,092 | 1,091 | 1,090 | 1,090 | 1,089 | 1,089 |
| 13,70 | 1,084 | 1,084 | 1,083 | 1,082 | 1,082 | 1,081 | 1,081 |
| 13,80 | 1,077 | 1,076 | 1,076 | 1,075 | 1,074 | 1,074 | 1,073 |
| 13,90 | 1,069 | 1,068 | 1,068 | 1,067 | 1,066 | 1,066 | 1,065 |
| 14,00 | 1,061 | 1,060 | 1,060 | 1,059 | 1,059 | 1,058 | 1,058 |
| 14,10 | 1,054 | 1,053 | 1,052 | 1,052 | 1,051 | 1,051 | 1,050 |
| 14,20 | 1,046 | 1,045 | 1,045 | 1,044 | 1,044 | 1,043 | 1,043 |
| 14,30 | 1,039 | 1,038 | 1,038 | 1,037 | 1,037 | 1,036 | 1,035 |
| 14,40 | 1,032 | 1,031 | 1,030 | 1,030 | 1,029 | 1,029 | 1,028 |
| 14,50 | 1,025 | 1,024 | 1,023 | 1,023 | 1,022 | 1,022 | 1,021 |
| 14,60 | 1,018 | 1,017 | 1,016 | 1,016 | 1,015 | 1,015 | 1,014 |



(199)

Diminution, caused by Refraction upon the Diameters inclined to the Horizon;  
supposing 30' to be the Diameter of the Moon or Sun.

| Inclination. | 80°  | 79°  | 78°  | 77° | 76° | 74° | 72° | 70° | 68° | 64° | 60° | 56° | 50° | 44° | 38° | 20° | 10° |
|--------------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0            | 0,0  | 0,0  | 0,0  | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| 3            | 0,0  | 0,0  | 0,0  | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| 6            | 0,2  | 0,1  | 0,1  | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| 9            | 0,4  | 0,3  | 0,3  | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| 12           | 0,7  | 0,6  | 0,5  | 0,4 | 0,4 | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,0 |
| 15           | 1,1  | 0,9  | 0,7  | 0,6 | 0,6 | 0,4 | 0,3 | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 |
| 18           | 1,5  | 1,2  | 1,0  | 0,9 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 |
| 21           | 2,0  | 1,6  | 1,4  | 1,2 | 1,0 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 |
| 24           | 2,5  | 2,1  | 1,8  | 1,5 | 1,3 | 1,1 | 0,8 | 0,7 | 0,6 | 0,4 | 0,3 | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 |
| 27           | 3,1  | 2,6  | 2,2  | 1,9 | 1,6 | 1,4 | 1,0 | 0,9 | 0,7 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 |
| 30           | 3,8  | 3,2  | 2,7  | 2,3 | 2,0 | 1,7 | 1,3 | 1,0 | 0,9 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 |
| 33           | 4,5  | 3,8  | 3,2  | 2,7 | 2,4 | 2,0 | 1,5 | 1,2 | 1,0 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,1 |
| 36           | 5,2  | 4,4  | 3,7  | 3,2 | 2,8 | 2,3 | 1,7 | 1,4 | 1,2 | 0,9 | 0,7 | 0,5 | 0,4 | 0,3 | 0,3 | 0,2 | 0,2 |
| 39           | 6,0  | 5,0  | 4,3  | 3,7 | 3,2 | 2,6 | 2,0 | 1,6 | 1,4 | 1,0 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 |
| 42           | 6,8  | 5,7  | 4,8  | 4,1 | 3,6 | 2,9 | 2,3 | 1,9 | 1,6 | 1,1 | 0,9 | 0,7 | 0,5 | 0,4 | 0,4 | 0,2 | 0,2 |
| 45           | 7,6  | 6,3  | 5,4  | 4,6 | 4,0 | 3,3 | 2,5 | 2,1 | 1,7 | 1,3 | 1,0 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 | 0,2 |
| 48           | 8,4  | 7,0  | 5,9  | 5,1 | 4,5 | 3,6 | 2,8 | 2,3 | 1,9 | 1,4 | 1,1 | 0,9 | 0,7 | 0,5 | 0,4 | 0,3 | 0,3 |
| 51           | 9,2  | 7,7  | 6,5  | 5,6 | 4,9 | 4,0 | 3,0 | 2,5 | 2,1 | 1,5 | 1,2 | 0,9 | 0,7 | 0,6 | 0,5 | 0,3 | 0,3 |
| 54           | 9,9  | 8,3  | 7,0  | 6,1 | 5,3 | 4,3 | 3,3 | 2,7 | 2,3 | 1,6 | 1,3 | 1,0 | 0,8 | 0,6 | 0,5 | 0,4 | 0,3 |
| 57           | 10,7 | 8,9  | 7,6  | 6,5 | 5,7 | 4,6 | 3,5 | 2,9 | 2,4 | 1,8 | 1,4 | 1,1 | 0,8 | 0,7 | 0,6 | 0,4 | 0,4 |
| 60           | 11,4 | 9,5  | 8,1  | 6,9 | 6,1 | 4,9 | 3,8 | 3,1 | 2,6 | 1,9 | 1,5 | 1,2 | 0,9 | 0,7 | 0,6 | 0,4 | 0,4 |
| 63           | 12,1 | 10,1 | 8,6  | 7,3 | 6,4 | 5,2 | 4,0 | 3,3 | 2,7 | 2,0 | 1,5 | 1,2 | 1,0 | 0,7 | 0,6 | 0,4 | 0,4 |
| 66           | 12,7 | 10,6 | 9,0  | 7,7 | 6,7 | 5,5 | 4,2 | 3,5 | 2,9 | 2,1 | 1,6 | 1,3 | 1,0 | 0,8 | 0,7 | 0,5 | 0,4 |
| 69           | 13,2 | 11,1 | 9,4  | 8,1 | 7,0 | 5,7 | 4,4 | 3,6 | 3,0 | 2,2 | 1,7 | 1,3 | 1,0 | 0,8 | 0,7 | 0,5 | 0,4 |
| 72           | 13,7 | 11,5 | 9,7  | 8,4 | 7,3 | 5,9 | 4,6 | 3,7 | 3,1 | 2,3 | 1,8 | 1,4 | 1,1 | 0,9 | 0,7 | 0,5 | 0,4 |
| 75           | 14,1 | 11,8 | 10,0 | 8,7 | 7,5 | 6,1 | 4,7 | 3,8 | 3,2 | 2,4 | 1,8 | 1,4 | 1,1 | 0,9 | 0,7 | 0,5 | 0,5 |
| 78           | 14,5 | 12,1 | 10,3 | 8,9 | 7   |     |     |     |     |     |     |     |     |     |     |     |     |

### Altitudes of the Sun or Moon.



# TABLES OF REFRACTION.

## TABLE I.

To convert the Altitude of the common Barometers, into metrical Altitude.

| French Barometer. |              | English Barometer. |              |
|-------------------|--------------|--------------------|--------------|
| Inch. Lin.        | M.           | Inch. Tenths.      | M.           |
| 26. 0             | 0,7038       | 27. 5              | 0,6983       |
| 1                 | 0,7061       | 6                  | 0,7008       |
| 2                 | 0,7083       | 7                  | 0,7033       |
| 3                 | 0,7106       | 8                  | 0,7059       |
| 4                 | 0,7129       | 9                  | 0,7084       |
| 5                 | 0,7151       |                    |              |
| 6                 | 0,7174       | 28. 0              | 0,7110       |
| 7                 | 0,7196       | 1                  | 0,7135       |
| 8                 | 0,7219       | 2                  | 0,7161       |
| 9                 | 0,7242       | 3                  | 0,7186       |
| 10                | 0,7264       | 4                  | 0,7211       |
| 11                | 0,7287       |                    |              |
| 27. 0             | 0,7309       | 5                  | 0,7237       |
| 1                 | 0,7332       | 6                  | 0,7262       |
| 2                 | 0,7354       | 7                  | 0,7287       |
| 3                 | 0,7377       | 8                  | 0,7313       |
| 4                 | 0,7400       | 9                  | 0,7338       |
| 5                 | 0,7422       |                    |              |
| 6                 | 0,7445       | 29. 0              | 0,7363       |
| 7                 | 0,7467       | 1                  | 0,7389       |
| 8                 | 0,7490       | 2                  | 0,7414       |
| 9                 | 0,7512       | 3                  | 0,7440       |
| 10                | 0,7535       | 4                  | 0,7465       |
| 11                | 0,7558       |                    |              |
| 28. 0             | 0,7580       | 5                  | 0,7490       |
| 1                 | 0,7603       | 6                  | 0,7516       |
| 2                 | 0,7625       | 7                  | 0,7541       |
| 3                 | 0,7648       | 8                  | 0,7567       |
| 4                 | 0,7670       | 9                  | 0,7592       |
| 5                 | 0,7693       |                    |              |
| 6                 | 0,7716       | 30. 0              | 0,7617       |
| 7                 | 0,7738       | 1                  | 0,7643       |
| 8                 | 0,7761       | 2                  | 0,7668       |
| 9                 | 0,7783       | 3                  | 0,7694       |
| 10                | 0,7806       | 4                  | 0,7719       |
| 11                | 0,7829       |                    |              |
| 29. 0             | 0,7851       | 5                  | 0,7744       |
|                   |              | 6                  | 0,7770       |
|                   |              | 7                  | 0,7795       |
|                   |              | 8                  | 0,7821       |
|                   |              | 9                  | 0,7846       |
|                   |              |                    |              |
|                   | Differ. 22,6 | 31. 0              | 0,7871       |
|                   |              |                    | Differ. 25,4 |

## TABLE II.

To convert the Degrees of REAUMUR'S Thermometer into Degrees of the Centesimal Thermometer.

| Réau-mur. | Centesimal. | Réau-mur. | Centesimal. |
|-----------|-------------|-----------|-------------|
| 0         | 0,00        | 40        | 50,00       |
| 1         | 1,25        | 41        | 51,25       |
| 2         | 2,50        | 42        | 52,50       |
| 3         | 3,75        | 43        | 53,75       |
| 4         | 5,00        | 44        | 55,00       |
| 5         | 6,25        | 45        | 56,25       |
| 6         | 7,50        | 46        | 57,50       |
| 7         | 8,75        | 47        | 58,75       |
| 8         | 10,00       | 48        | 60,00       |
| 9         | 11,25       | 49        | 61,25       |
| 10        | 12,50       | 50        | 62,50       |
| 11        | 13,75       | 51        | 63,75       |
| 12        | 15,00       | 52        | 65,00       |
| 13        | 16,25       | 53        | 66,25       |
| 14        | 17,50       | 54        | 67,50       |
| 15        | 18,75       | 55        | 68,75       |
| 16        | 20,00       | 56        | 70,00       |
| 17        | 21,25       | 57        | 71,25       |
| 18        | 22,50       | 58        | 72,50       |
| 19        | 23,75       | 59        | 73,75       |
| 20        | 25,00       | 60        | 75,00       |
| 21        | 26,25       | 61        | 76,25       |
| 22        | 27,50       | 62        | 77,50       |
| 23        | 28,75       | 63        | 78,75       |
| 24        | 30,00       | 64        | 80,00       |
| 25        | 31,25       | 65        | 81,25       |
| 26        | 32,50       | 66        | 82,50       |
| 27        | 33,75       | 67        | 83,75       |
| 28        | 35,00       | 68        | 85,00       |
| 29        | 36,25       | 69        | 86,25       |
| 30        | 37,50       | 70        | 87,50       |
| 31        | 38,75       | 71        | 88,75       |
| 32        | 40,00       | 72        | 90,00       |
| 33        | 41,25       | 73        | 91,25       |
| 34        | 42,50       | 74        | 92,50       |
| 35        | 43,75       | 75        | 93,75       |
| 36        | 45,00       | 76        | 95,00       |
| 37        | 46,25       | 77        | 96,25       |
| 38        | 47,50       | 78        | 97,50       |
| 39        | 48,75       | 79        | 98,75       |
| 40        | 50,00       | 80        | 100,00      |



TABLE III.

Comparison between FAHRENHEIT'S Thermometer, and the Centesimal Thermometer.

| Fahren-<br>heit. | Fahren-<br>heit. | Centesimal. | Fahren-<br>heit. | Fahren-<br>heit. | Centesimal. | Fahren-<br>heit. | Centesimal. | Fahren-<br>heit. | Centesimal. |
|------------------|------------------|-------------|------------------|------------------|-------------|------------------|-------------|------------------|-------------|
| + 32             | + 32             | 0,00        | - 4              | + 68             | 20,00       | 104              | 40,00       | 140              | 60,00       |
| 31               | 33               | 0,55        | 5                | 69               | 20,55       | 105              | 40,55       | 141              | 60,55       |
| 30               | 34               | 1,11        | 6                | 70               | 21,11       | 106              | 41,11       | 142              | 61,11       |
| 29               | 35               | 1,66        | 7                | 71               | 21,66       | 107              | 41,66       | 143              | 61,66       |
| 28               | 36               | 2,22        | 8                | 72               | 22,22       | 108              | 42,22       | 144              | 62,22       |
| 27               | 37               | 2,77        | 9                | 73               | 22,77       | 109              | 42,77       | 145              | 62,77       |
| 26               | 38               | 3,33        | 10               | 74               | 23,33       | 110              | 43,33       | 146              | 63,33       |
| 25               | 39               | 3,88        | 11               | 75               | 23,88       | 111              | 43,88       | 147              | 63,88       |
| 24               | 40               | 4,44        | 12               | 76               | 24,44       | 112              | 44,44       | 148              | 64,44       |
| + 23             | + 41             | 5,00        | - 13             | + 77             | 25,00       | 113              | 45,00       | 149              | 65,00       |
| 22               | 42               | 5,55        | 14               | 78               | 25,55       | 114              | 45,55       | 150              | 65,55       |
| 21               | 43               | 6,11        | 15               | 79               | 26,11       | 115              | 46,11       | 151              | 66,11       |
| 20               | 44               | 6,66        | 16               | 80               | 26,66       | 116              | 46,66       | 152              | 66,66       |
| 19               | 45               | 7,22        | 17               | 81               | 27,22       | 117              | 47,22       | 153              | 67,22       |
| 18               | 46               | 7,77        | 18               | 82               | 27,77       | 118              | 47,77       | 154              | 67,77       |
| 17               | 47               | 8,33        | 19               | 83               | 28,33       | 119              | 48,33       | 155              | 68,33       |
| 16               | 48               | 8,88        | 20               | 84               | 28,88       | 120              | 48,88       | 156              | 68,88       |
| 15               | 49               | 9,44        | 21               | 85               | 29,44       | 121              | 49,44       | 157              | 69,44       |
| + 14             | + 50             | 10,00       | - 22             | + 86             | 30,00       | 122              | 50,00       | 158              | 70,00       |
| 13               | 51               | 10,55       | 23               | 87               | 30,55       | 123              | 50,55       | 159              | 70,55       |
| 12               | 52               | 11,11       | 24               | 88               | 31,11       | 124              | 51,11       | 160              | 71,11       |
| 11               | 53               | 11,66       | 25               | 89               | 31,66       | 125              | 51,66       | 161              | 71,66       |
| 10               | 54               | 12,22       | 26               | 90               | 32,22       | 126              | 52,22       | 162              | 72,22       |
| 9                | 55               | 12,77       | 27               | 91               | 32,77       | 127              | 52,77       | 163              | 72,77       |
| 8                | 56               | 13,33       | 28               | 92               | 33,33       | 128              | 53,33       | 164              | 73,33       |
| 7                | 57               | 13,88       | 29               | 93               | 33,88       | 129              | 53,88       | 165              | 73,88       |
| 6                | 58               | 14,44       | 30               | 94               | 34,44       | 130              | 54,44       | 166              | 74,44       |
| + 5              | + 59             | 15,00       | - 31             | + 95             | 35,00       | 131              | 55,00       | 167              | 75,00       |
| 4                | + 60             | 15,55       | 32               | 96               | 35,55       | 132              | 55,55       | 168              | 75,55       |
| 3                | 61               | 16,11       | 33               | 97               | 36,11       | 133              | 56,11       | 169              | 76,11       |
| 2                | 62               | 16,66       | 34               | 98               | 36,66       | 134              | 56,66       | 170              | 76,66       |
| + 1              | 63               | 17,22       | 35               | 99               | 37,22       | 135              | 57,22       | 171              | 77,22       |
| 0                | 64               | 17,77       | 36               | 100              | 37,77       | 136              | 57,77       | 172              | 77,77       |
| - 1              | 65               | 18,33       | 37               | 101              | 38,33       | 137              | 58,33       | 173              | 78,33       |
| 2                | 66               | 18,88       | 38               | 102              | 38,88       | 138              | 58,88       | 174              | 78,88       |
| 3                | 67               | 19,44       | 39               | 103              | 39,44       | 139              | 59,44       | 175              | 79,44       |
| 4                | + 68             | 20,00       | - 40             | + 104            | 40,00       | 140              | 60,00       | 176              | 80,00       |

When FAHRENHEIT'S degrees are either negative or positive, but below 32, the Centesimal degree is negative.



TABLE IV.

Logarithms of the Refraction for 0<sup>m</sup>760 of the Barometer, and +10° of the Centesimal Thermometer.

| Zenith Dist. | Logarithms. | Diff. for 1'. | Zenith Dist. | Logarithms. | Diff. for 1'. | Zenith Dist. | Logarithms. | Diff. for 1'. | Zenith Dist. | Logarithms. | Diff. for 1'. |
|--------------|-------------|---------------|--------------|-------------|---------------|--------------|-------------|---------------|--------------|-------------|---------------|
| 0°           | .....       |               | 40°          | 1.6890      | 2,55          | 80° 0'       | 2.5049      | 7,1           | 87° 0'       | 2.9386      | 16,1          |
| 1            | 0.0000      | 51,45         | 41           | 1.7043      | 2,53          | 10           | 2.5120      | 7,0           | 10           | 2.9547      | 16,6          |
| 2            | 0.3087      | 29,23         | 42           | 1.7195      | 2,53          | 20           | 2.5190      | 7,2           | 20           | 2.9713      | 17,0          |
| 3            | 0.4841      | 21,05         | 43           | 1.7347      | 2,53          | 30           | 2.5262      | 7,2           | 30           | 2.9883      | 17,4          |
| 4            | 0.6104      | 16,15         | 44           | 1.7499      | 2,52          | 40           | 2.5334      | 7,4           | 40           | 3.0057      | 18,1          |
| 5            | 0.7073      | 13,32         | 45           | 1.7650      | 2,52          | 50           | 2.5408      | 7,5           | 50           | 3.0238      | 18,5          |
|              |             |               |              |             |               | 81. 0        | 2.5483      | 7,5           | 88. 0        | 3.0423      | 19,0          |
| 6            | 0.7872      | 11,20         | 46           | 1.7801      | 2,53          | 10           | 2.5558      | 7,7           | 10           | 3.0613      | 19,6          |
| 7            | 0.8544      | 9,82          | 47           | 1.7953      | 2,53          | 20           | 2.5635      | 7,9           | 20           | 3.0809      | 20,1          |
| 8            | 0.9133      | 8,67          | 48           | 1.8105      | 2,53          | 30           | 2.5714      | 8,1           | 30           | 3.1010      | 20,7          |
| 9            | 0.9653      | 7,75          | 49           | 1.8257      | 2,55          | 40           | 2.5795      | 8,2           | 40           | 3.1217      | 21,2          |
| 10           | 1.0118      | 7,05          | 50           | 1.8410      | 2,57          | 50           | 2.5877      | 8,2           | 50           | 3.1429      | 21,8          |
|              |             |               |              |             |               | 82. 0        | 2.5959      | 8,2           | 89. 0        | 3.1647      | 22,4          |
| 11           | 1.0541      | 6,43          | 51           | 1.8564      | 2,58          | 10           | 2.6041      | 8,3           | 10           | 3.1871      | 23,0          |
| 12           | 1.0929      | 6,00          | 52           | 1.8719      | 2,60          | 20           | 2.6124      | 8,5           | 20           | 3.2101      | 23,4          |
| 13           | 1.1289      | 5,55          | 53           | 1.8875      | 2,63          | 30           | 2.6209      | 8,8           | 30           | 3.2335      | 24,0          |
| 14           | 1.1622      | 5,23          | 54           | 1.9033      | 2,67          | 40           | 2.6297      | 9,1           | 40           | 3.2575      | 24,5          |
| 15           | 1.1936      | 4,90          | 55           | 1.9193      | 2,68          | 50           | 2.6388      | 9,3           | 50           | 3.2820      | 24,7          |
|              |             |               |              |             |               | 83. 0        | 2.6481      | 9,6           | 90. 0        | 3.3067      | 24,9          |
| 16           | 1.2230      | 4,63          | 56           | 1.9354      | 2,73          | 10           | 2.6577      | 9,7           | 10           | 3.3316      | 25,1          |
| 17           | 1.2508      | 4,42          | 57           | 1.9518      | 2,78          | 20           | 2.6674      | 9,8           | 20           | 3.3567      | 25,3          |
| 18           | 1.2773      | 4,18          | 58           | 1.9685      | 2,82          | 30           | 2.6772      | 10,0          | 30           | 3.3820      |               |
| 19           | 1.3024      | 4,00          | 59           | 1.9854      | 2,87          | 40           | 2.6872      | 10,2          |              |             |               |
| 20           | 1.3264      | 3,87          | 60           | 2.0026      | 2,93          | 50           | 2.6974      | 10,1          |              |             |               |
|              |             |               |              |             |               | 84. 0        | 2.7075      | 10,4          |              |             |               |
| 21           | 1.3496      | 3,70          | 61           | 2.0202      | 2,98          | 10           | 2.7179      | 10,7          |              |             |               |
| 22           | 1.3718      | 3,60          | 62           | 2.0381      | 3,07          | 20           | 2.7286      | 11,0          |              |             |               |
| 23           | 1.3934      | 3,43          | 63           | 2.0565      | 3,13          | 30           | 2.7396      | 11,2          |              |             |               |
| 24           | 1.4140      | 3,33          | 64           | 2.0753      | 3,22          | 40           | 2.7508      | 11,4          |              |             |               |
| 25           | 1.4340      | 3,27          | 65           | 2.0946      | 3,32          | 50           | 2.7622      | 11,8          |              |             |               |
|              |             |               |              |             |               | 85. 0        | 2.7740      | 12,0          |              |             |               |
| 26           | 1.4536      | 3,15          | 66           | 2.1145      | 3,42          | 10           | 2.7860      | 12,2          |              |             |               |
| 27           | 1.4725      | 3,10          | 67           | 2.1350      | 3,52          | 20           | 2.7982      | 12,5          |              |             |               |
| 28           | 1.4911      | 3,00          | 68           | 2.1561      | 3,67          | 30           | 2.8107      | 12,8          |              |             |               |
| 29           | 1.5091      | 2,95          | 69           | 2.1781      | 3,80          | 40           | 2.8235      | 13,2          |              |             |               |
| 30           | 1.5268      | 2,88          | 70           | 2.2009      | 3,95          | 50           | 2.8367      | 13,5          |              |             |               |
|              |             |               |              |             |               | 86. 0        | 2.8502      | 13,8          |              |             |               |
| 31           | 1.5441      | 2,83          | 71           | 2.2246      | 4,12          | 10           | 2.8640      | 14,2          |              |             |               |
| 32           | 1.5611      | 2,78          | 72           | 2.2493      | 4,32          | 20           | 2.8782      | 14,5          |              |             |               |
| 33           | 1.5778      | 2,75          | 73           | 2.2752      | 4,53          | 30           | 2.8927      | 14,9          |              |             |               |
| 34           | 1.5943      | 2,70          | 74           | 2.3024      | 4,77          | 40           | 2.9076      | 15,3          |              |             |               |
| 35           | 1.6105      | 2,67          | 75           | 2.3310      | 5,05          | 50           | 2.9229      | 15,7          |              |             |               |
|              |             |               |              |             |               | 87. 0        | 2.9386      |               |              |             |               |
| 36           | 1.6265      | 2,65          | 76           | 2.3613      | 5,38          |              |             |               |              |             |               |
| 37           | 1.6424      | 2,60          | 77           | 2.3936      | 5,73          |              |             |               |              |             |               |
| 38           | 1.6580      | 2,58          | 78           | 2.4280      | 6,15          |              |             |               |              |             |               |
| 39           | 1.6735      | 2,58          | 79           | 2.4649      | 6,67          |              |             |               |              |             |               |
| 40           | 1.6890      |               | 80           | 2.5049      |               |              |             |               |              |             |               |

TABLE V.

| Zenith Distance. | —    |
|------------------|------|
| 67°              | 0",0 |
| 68               | 0,1  |
| 74               | 0,1  |
| 75               | 0,2  |
| 77               | 0,2  |
| 78               | 0,3  |
| 79               | 0,4  |
| 80               | 0,5  |
| 81               | 0,7  |
| 82               | 1,0  |
| 83               | 1,6  |
| 84               | 2,5  |
| 85               | 4,3  |



TABLE VI.

Table of the Logarithms of the Factor dependent on the Height of the Barometer.

| Altitude of Barom.  | Logarithms. | Altitude of Barom.  | Logarithms. |
|---------------------|-------------|---------------------|-------------|
| 0 <sup>m</sup> .710 | 9.9704      | 0 <sup>m</sup> .760 | 0.0000      |
| 711                 | 9.9710      | 761                 | 0.0005      |
| 712                 | 9.9716      | 762                 | 0.0011      |
| 713                 | 9.9722      | 763                 | 0.0017      |
| 714                 | 9.9728      | 764                 | 0.0022      |
| 0.715               | 9.9734      | 0.765               | 0.0028      |
| 716                 | 9.9741      | 766                 | 0.0034      |
| 717                 | 9.9747      | 767                 | 0.0039      |
| 718                 | 9.9753      | 768                 | 0.0045      |
| 719                 | 9.9759      | 769                 | 0.0051      |
| 0.720               | 9.9765      | 0.770               | 0.0056      |
| 721                 | 9.9771      | 771                 | 0.0062      |
| 722                 | 9.9777      | 772                 | 0.0068      |
| 723                 | 9.9783      | 773                 | 0.0073      |
| 724                 | 9.9789      | 774                 | 0.0079      |
| 0.725               | 9.9795      | 0.775               | 0.0085      |
| 726                 | 9.9801      | 776                 | 0.0090      |
| 727                 | 9.9807      | 777                 | 0.0096      |
| 728                 | 9.9813      | 778                 | 0.0101      |
| 729                 | 9.9819      | 779                 | 0.0107      |
| 0.730               | 9.9824      | 0.780               | 0.0112      |
| 731                 | 9.9830      | 781                 | 0.0118      |
| 732                 | 9.9836      | 782                 | 0.0123      |
| 733                 | 9.9842      | 783                 | 0.0129      |
| 734                 | 9.9848      | 784                 | 0.0135      |
| 0.735               | 9.9854      | 0.785               | 0.0140      |
| 736                 | 9.9860      | 786                 | 0.0146      |
| 737                 | 9.9865      | 787                 | 0.0151      |
| 738                 | 9.9871      | 788                 | 0.0157      |
| 739                 | 9.9877      | 789                 | 0.0162      |
| 0.740               | 9.9883      | 0.790               | 0.0168      |
| 741                 | 9.9889      | 791                 | 0.0173      |
| 742                 | 9.9895      | 792                 | 0.0179      |
| 743                 | 9.9900      | 793                 | 0.0184      |
| 744                 | 9.9906      | 794                 | 0.0190      |
| 0.745               | 9.9912      | 0.795               | 0.0195      |
| 746                 | 9.9918      | 796                 | 0.0200      |
| 747                 | 9.9924      | 797                 | 0.0206      |
| 748                 | 9.9929      | 798                 | 0.0211      |
| 749                 | 9.9935      | 799                 | 0.0217      |
| 0.750               | 9.9941      | 0.800               | 0.0222      |
| 751                 | 9.9947      | 801                 | 0.0228      |
| 752                 | 9.9952      | 802                 | 0.0233      |
| 753                 | 9.9958      | 803                 | 0.0239      |
| 754                 | 9.9964      | 804                 | 0.0244      |
| 0.755               | 9.9971      | 0.805               | 0.0249      |
| 756                 | 9.9977      | 806                 | 0.0255      |
| 757                 | 9.9982      | 807                 | 0.0260      |
| 758                 | 9.9988      | 808                 | 0.0266      |
| 759                 | 9.9994      | 809                 | 0.0271      |
|                     |             | 0.810               | 0.0276      |

TABLE VII.

Table of the Logarithms of the Factor dependent on the Height of the Thermometer.

| Altitude of Therm. | Logarithms. | Altitude of Therm. | Logarithms. |
|--------------------|-------------|--------------------|-------------|
| + 35               | 9.9604      | - 0                | 0.0168      |
| 34                 | 9.9619      | 1                  | 0.0185      |
| 33                 | 9.9634      | 2                  | 0.0202      |
| 32                 | 9.9650      | 3                  | 0.0219      |
| 31                 | 9.9665      | 4                  | 0.0237      |
| 30                 | 9.9681      | 5                  | 0.0254      |
| 29                 | 9.9696      | 6                  | 0.0271      |
| 28                 | 9.9712      | 7                  | 0.0289      |
| 27                 | 9.9727      | 8                  | 0.0307      |
| 26                 | 9.9743      | 9                  | 0.0324      |
| 25                 | 9.9758      | 10                 | 0.0342      |
| 24                 | 9.9774      | 11                 | 0.0360      |
| 23                 | 9.9790      | 12                 | 0.0377      |
| 22                 | 9.9806      | 13                 | 0.0395      |
| 21                 | 9.9822      | 14                 | 0.0413      |
| 20                 | 9.9838      | 15                 | 0.0431      |
| 19                 | 9.9854      | 16                 | 0.0449      |
| 18                 | 9.9870      | 17                 | 0.0467      |
| 17                 | 9.9886      | 18                 | 0.0486      |
| 16                 | 9.9902      | 19                 | 0.0504      |
| 15                 | 9.9918      | 20                 | 0.0522      |
| 14                 | 9.9934      | 21                 | 0.0541      |
| 13                 | 9.9950      | 22                 | 0.0559      |
| 12                 | 9.9967      | 23                 | 0.0578      |
| 11                 | 9.9983      | 24                 | 0.0597      |
| 10                 | 0.0000      | 25                 | 0.0615      |
| 9                  | 0.0016      | 26                 | 0.0634      |
| 8                  | 0.0033      | 27                 | 0.0653      |
| 7                  | 0.0050      | 28                 | 0.0672      |
| 6                  | 0.0066      | 29                 | 0.0691      |
| 5                  | 0.0083      | 30                 | 0.0710      |
| 4                  | 0.0100      | 31                 | 0.0729      |
| 3                  | 0.0117      | 32                 | 0.0749      |
| 2                  | 0.0134      | 33                 | 0.0768      |
| + 1                | 0.0151      | 34                 | 0.0787      |
| 0                  | 0.0168      | - 35               | 0.0807      |

The difference of Table VI. varies from 7 to 5; that of Table VII. from 15 to 20.



## TABLE VIII.

## True Refraction.

ARGUMENT. Sum of the three Logarithms taken from the preceding Tables.

| Log. | Refract. | Diff. | Log. | Refract. | Diff. | Log. | Refract. | Diff. | Log. | Refract. | Diff. |
|------|----------|-------|------|----------|-------|------|----------|-------|------|----------|-------|
| 0.00 | 0. 1,0   | 0,3   | 2.20 | 2. 38,5  | 3,7   | 2.60 | 6. 38,1  | 9,3   | 3.00 | 16. 40,0 | 23,3  |
| 0.10 | 0. 1,3   | 0,3   | 2.21 | 2. 42,2  | 3,8   | 2.61 | 6. 47,4  | 9,5   | 3.01 | 17. 3,3  | 23,9  |
| 0.20 | 0. 1,6   | 0,4   | 2.22 | 2. 46,0  | 3,8   | 2.62 | 6. 56,9  | 9,7   | 3.02 | 17. 27,2 | 24,3  |
| 0.30 | 0. 2,0   | 0,5   | 2.23 | 2. 49,8  | 4,0   | 2.63 | 7. 6,6   | 9,9   | 3.03 | 17. 51,5 | 24,9  |
| 0.40 | 0. 2,5   | 0,7   | 2.24 | 2. 53,8  | 4,1   | 2.64 | 7. 16,5  | 10,2  | 3.04 | 18. 16,4 | 25,6  |
| 0.50 | 0. 3,2   | 0,8   | 2.25 | 2. 57,9  | 4,1   | 2.65 | 7. 26,7  | 10,4  | 3.05 | 18. 42,0 | 26,1  |
| 0.60 | 0. 4,0   | 1,0   | 2.26 | 3. 2,0   | 4,2   | 2.66 | 7. 37,1  | 10,6  | 3.06 | 19. 8,1  | 26,8  |
| 0.70 | 0. 5,0   | 1,3   | 2.27 | 3. 6,2   | 4,3   | 2.67 | 7. 47,7  | 10,9  | 3.07 | 19. 34,9 | 27,4  |
| 0.80 | 0. 6,3   | 1,6   | 2.28 | 3. 10,5  | 4,5   | 2.68 | 7. 58,6  | 11,2  | 3.08 | 20. 2,3  | 28,0  |
| 0.90 | 0. 7,9   | 2,1   | 2.29 | 3. 15,0  | 4,5   | 2.69 | 8. 9,8   | 11,4  | 3.09 | 20. 30,3 | 28,6  |
| 1.00 | 0. 10,0  | 2,6   | 2.30 | 3. 19,5  | 4,7   | 2.70 | 8. 21,2  | 11,7  | 3.10 | 20. 58,9 | 29,4  |
| 1.10 | 0. 12,6  | 3,2   | 2.31 | 3. 24,2  | 4,7   | 2.71 | 8. 32,9  | 11,9  | 3.11 | 21. 28,3 | 30,0  |
| 1.20 | 0. 15,8  | 4,2   | 2.32 | 3. 28,9  | 4,9   | 2.72 | 8. 44,8  | 12,2  | 3.12 | 21. 58,3 | 30,7  |
| 1.30 | 0. 20,0  | 5,1   | 2.33 | 3. 33,8  | 5,0   | 2.73 | 8. 57,0  | 12,5  | 3.13 | 22. 29,0 | 31,4  |
| 1.40 | 0. 25,1  | 6,5   | 2.34 | 3. 38,8  | 5,1   | 2.74 | 9. 9,5   | 12,8  | 3.14 | 23. 0,4  | 32,1  |
| 1.50 | 0. 31,6  | 8,2   | 2.35 | 3. 43,9  | 5,2   | 2.75 | 9. 22,3  | 13,1  | 3.15 | 23. 32,5 | 32,9  |
| 1.60 | 0. 39,8  | 10,3  | 2.36 | 3. 49,1  | 5,3   | 2.76 | 9. 35,4  | 13,4  | 3.16 | 24. 5,4  | 33,7  |
| 1.70 | 0. 50,1  | 13,0  | 2.37 | 3. 54,4  | 5,5   | 2.77 | 9. 48,8  | 13,8  | 3.17 | 24. 39,1 | 34,5  |
| 1.80 | 1. 3,1   | 16,3  | 2.38 | 3. 59,9  | 5,6   | 2.78 | 10. 2,6  | 14,0  | 3.18 | 25. 13,6 | 35,2  |
| 1.90 | 1. 19,4  | 20,6  | 2.39 | 4. 5,5   | 5,7   | 2.79 | 10. 16,6 | 14,4  | 3.19 | 25. 48,8 | 36,1  |
| 2.00 | 1. 40,0  | 2,3   | 2.40 | 4. 11,2  | 5,8   | 2.80 | 10. 31,0 | 14,7  | 3.20 | 26. 24,9 | 36,9  |
| 2.01 | 1. 42,3  | 2,4   | 2.41 | 4. 17,0  | 6,0   | 2.81 | 10. 45,7 | 15,0  | 3.21 | 27. 1,8  | 37,8  |
| 2.02 | 1. 44,7  | 2,5   | 2.42 | 4. 23,0  | 6,1   | 2.82 | 11. 0,7  | 15,4  | 3.22 | 27. 39,6 | 38,6  |
| 2.03 | 1. 47,2  | 2,4   | 2.43 | 4. 29,1  | 6,3   | 2.83 | 11. 16,1 | 15,7  | 3.23 | 28. 18,2 | 39,6  |
| 2.04 | 1. 49,6  | 2,6   | 2.44 | 4. 35,4  | 6,4   | 2.84 | 11. 31,8 | 16,1  | 3.24 | 28. 57,8 | 40,5  |
| 2.05 | 1. 52,2  | 2,6   | 2.45 | 4. 41,8  | 6,6   | 2.85 | 11. 47,9 | 16,5  | 3.25 | 29. 38,3 | 41,4  |
| 2.06 | 1. 54,8  | 2,7   | 2.46 | 4. 48,4  | 6,7   | 2.86 | 12. 4,4  | 17,0  | 3.26 | 30. 19,7 | 42,4  |
| 2.07 | 1. 57,5  | 2,7   | 2.47 | 4. 55,1  | 6,9   | 2.87 | 12. 21,4 | 17,3  | 3.27 | 31. 2,1  | 43,4  |
| 2.08 | 2. 0,2   | 2,8   | 2.48 | 5. 2,0   | 7,0   | 2.88 | 12. 38,7 | 17,5  | 3.28 | 31. 45,5 | 44,3  |
| 2.09 | 2. 3,0   | 2,9   | 2.49 | 5. 9,0   | 7,2   | 2.89 | 12. 56,2 | 18,0  | 3.29 | 32. 29,8 | 45,5  |
| 2.10 | 2. 5,9   | 2,9   | 2.50 | 5. 16,2  | 7,4   | 2.90 | 13. 14,2 | 18,6  | 3.30 | 33. 15,3 | 46,4  |
| 2.11 | 2. 8,8   | 3,0   | 2.51 | 5. 23,6  | 7,5   | 2.91 | 13. 32,8 | 19,0  | 3.31 | 34. 1,7  | 47,6  |
| 2.12 | 2. 11,8  | 3,1   | 2.52 | 5. 31,1  | 7,7   | 2.92 | 13. 51,8 | 19,3  | 3.32 | 34. 49,3 | 48,7  |
| 2.13 | 2. 14,9  | 3,1   | 2.53 | 5. 38,8  | 7,9   | 2.93 | 14. 11,1 | 19,8  | 3.33 | 35. 38,0 | 49,8  |
| 2.14 | 2. 18,0  | 3,2   | 2.54 | 5. 46,7  | 8,1   | 2.94 | 14. 30,9 | 20,2  | 3.34 | 36. 27,8 | 50,9  |
| 2.15 | 2. 21,2  | 3,3   | 2.55 | 5. 54,8  | 8,3   | 2.95 | 14. 51,1 | 20,9  | 3.35 | 37. 18,7 | 52,2  |
| 2.16 | 2. 24,5  | 3,4   | 2.56 | 6. 3,1   | 8,4   | 2.96 | 15. 12,0 | 21,3  | 3.36 | 38. 10,9 | 53,3  |
| 2.17 | 2. 27,9  | 3,5   | 2.57 | 6. 11,5  | 8,7   | 2.97 | 15. 33,3 | 21,7  | 3.37 | 39. 4,2  | 54,6  |
| 2.18 | 2. 31,4  | 3,5   | 2.58 | 6. 20,2  | 8,8   | 2.98 | 15. 55,0 | 22,2  | 3.38 | 39. 58,8 | 55,9  |
| 2.19 | 2. 34,9  | 3,6   | 2.59 | 6. 29,0  | 9,1   | 2.99 | 16. 17,2 | 22,8  | 3.39 | 40. 54,7 | 57,2  |
| 2.20 | 2. 38,5  |       | 2.60 | 6. 38,1  |       | 3.00 | 16. 40,0 |       | 3.40 | 41. 51,9 |       |



TABLE IX.

Refraction for 0<sup>m</sup>760 of the Barometer, and + 10° of the Centesimal Thermometer.

| Zenith<br>Dist. | Refrac-<br>tion. | Diff. | Zenith<br>Dist. | Refrac-<br>tion. | Diff. | Zenith<br>Dist. | Refrac-<br>tion. | Diff. | Zenith<br>Dist. | Refrac-<br>tion. | Diff. |
|-----------------|------------------|-------|-----------------|------------------|-------|-----------------|------------------|-------|-----------------|------------------|-------|
| 0               | 0. 0,0           | "     | 40              | 0. 48,9          | 1,7   | 80              | 5. 19,8          | "     | 87              | 14. 28,1         | "     |
| 1               | 0. 1,0           | 1,0   | 41              | 0. 50,6          | 1,8   | 10              | 5. 25,1          | 5,3   | 10              | 15. 0,9          | 32,8  |
| 2               | 0. 2,0           | 1,1   | 42              | 0. 52,4          | 1,9   | 20              | 5. 30,4          | 5,3   | 20              | 15. 36,0         | 35,1  |
| 3               | 0. 3,1           | 1,0   | 43              | 0. 54,3          | 1,9   | 30              | 5. 35,9          | 5,5   | 30              | 16. 13,4         | 37,4  |
| 4               | 0. 4,1           | 1,0   | 44              | 0. 56,2          | 2,0   | 40              | 5. 41,5          | 5,6   | 40              | 16. 53,2         | 39,8  |
| 5               | 0. 5,1           | 1,0   | 45              | 0. 58,2          | 2,1   | 50              | 5. 47,4          | 5,9   | 50              | 17. 36,3         | 43,1  |
| 6               | 0. 6,1           | 1,1   | 46              | 1. 0,3           | 2,1   | 81              | 5. 53,5          | 6,1   | 88              | 18. 22,2         | 45,9  |
| 7               | 0. 7,2           | 1,0   | 47              | 1. 2,4           | 2,2   | 10              | 5. 59,9          | 6,4   | 10              | 19. 11,5         | 49,3  |
| 8               | 0. 8,2           | 1,0   | 48              | 1. 4,6           | 2,2   | 20              | 6. 6,4           | 6,5   | 20              | 20. 4,8          | 53,3  |
| 9               | 0. 9,2           | 1,1   | 49              | 1. 6,9           | 2,3   | 30              | 6. 13,1          | 6,7   | 30              | 21. 1,9          | 57,1  |
| 10              | 0. 10,3          | 1,1   | 50              | 1. 9,3           | 2,4   | 40              | 6. 20,0          | 6,9   | 40              | 22. 3,4          | 61,5  |
| 11              | 0. 11,3          | 1,1   | 51              | 1. 11,8          | 2,5   | 50              | 6. 27,1          | 7,1   | 50              | 23. 9,6          | 66,2  |
| 12              | 0. 12,4          | 1,1   | 52              | 1. 14,4          | 2,6   | 82              | 6. 34,4          | 7,3   | 89              | 24. 21,2         | 71,6  |
| 13              | 0. 13,5          | 1,1   | 53              | 1. 17,2          | 2,8   | 10              | 6. 41,9          | 7,5   | 10              | 25. 38,6         | 77,4  |
| 14              | 0. 14,5          | 1,1   | 54              | 1. 20,1          | 2,9   | 20              | 6. 49,6          | 7,7   | 20              | 27. 2,2          | 83,6  |
| 15              | 0. 15,6          | 1,1   | 55              | 1. 23,1          | 3,0   | 30              | 6. 57,7          | 8,1   | 30              | 28. 32,0         | 89,8  |
| 16              | 0. 16,7          | 1,1   | 56              | 1. 26,2          | 3,1   | 40              | 7. 6,3           | 8,6   | 40              | 30. 9,3          | 97,3  |
| 17              | 0. 17,8          | 1,1   | 57              | 1. 29,6          | 3,4   | 50              | 7. 15,3          | 9,0   | 50              | 31. 54,3         | 105,0 |
| 18              | 0. 18,9          | 1,1   | 58              | 1. 33,1          | 3,5   | 83              | 7. 24,7          | 9,4   | 90              | 33. 46,3         | 112,0 |
| 19              | 0. 20,0          | 1,2   | 59              | 1. 36,7          | 3,6   | 10              | 7. 34,7          | 10,0  | 10              | 35. 45,9         | 119,6 |
| 20              | 0. 21,2          | 1,2   | 60              | 1. 40,6          | 3,9   | 20              | 7. 44,9          | 10,2  | 20              | 37. 53,6         | 127,7 |
| 21              | 0. 22,4          | 1,2   | 61              | 1. 44,8          | 4,2   | 30              | 7. 55,6          | 10,7  | 30              | 40. 10,0         | 136,4 |
| 22              | 0. 23,5          | 1,2   | 62              | 1. 49,2          | 4,4   | 40              | 8. 6,6           | 11,0  | 40              |                  |       |
| 23              | 0. 24,7          | 1,2   | 63              | 1. 53,9          | 4,7   | 50              | 8. 18,2          | 11,6  | 50              |                  |       |
| 24              | 0. 25,9          | 1,3   | 64              | 1. 58,9          | 5,0   | 84              | 8. 29,9          | 11,7  | 84              |                  |       |
| 25              | 0. 27,2          | 1,3   | 65              | 2. 4,3           | 5,4   | 10              | 8. 42,3          | 12,4  | 10              |                  |       |
| 26              | 0. 28,4          | 1,2   | 66              | 2. 10,2          | 5,9   | 20              | 8. 55,3          | 13,0  | 20              |                  |       |
| 27              | 0. 29,7          | 1,3   | 67              | 2. 16,5          | 6,3   | 30              | 9. 9,0           | 13,7  | 30              |                  |       |
| 28              | 0. 31,0          | 1,3   | 68              | 2. 23,2          | 6,7   | 40              | 9. 23,4          | 14,4  | 40              |                  |       |
| 29              | 0. 32,3          | 1,3   | 69              | 2. 30,6          | 7,4   | 50              | 9. 38,4          | 15,0  | 50              |                  |       |
| 30              | 0. 33,6          | 1,3   | 70              | 2. 38,8          | 8,2   | 85              | 9. 54,3          | 15,9  | 85              |                  |       |
| 31              | 0. 35,0          | 1,4   | 71              | 2. 47,7          | 8,9   | 10              | 10. 10,9         | 16,6  | 10              |                  |       |
| 32              | 0. 36,4          | 1,4   | 72              | 2. 57,6          | 9,9   | 20              | 10. 28,3         | 17,4  | 20              |                  |       |
| 33              | 0. 37,8          | 1,4   | 73              | 3. 8,5           | 10,9  | 30              | 10. 46,7         | 18,4  | 30              |                  |       |
| 34              | 0. 39,3          | 1,5   | 74              | 3. 20,6          | 12,1  | 40              | 11. 6,1          | 19,4  | 40              |                  |       |
| 35              | 0. 40,8          | 1,5   | 75              | 3. 34,3          | 13,7  | 50              | 11. 26,6         | 20,5  | 50              |                  |       |
| 36              | 0. 42,3          | 1,5   | 76              | 3. 49,8          | 15,5  | 86              | 11. 48,3         | 21,7  | 86              |                  |       |
| 37              | 0. 43,9          | 1,6   | 77              | 4. 7,5           | 17,7  | 10              | 12. 11,3         | 23,0  | 10              |                  |       |
| 38              | 0. 45,5          | 1,6   | 78              | 4. 27,9          | 20,4  | 20              | 12. 35,6         | 24,3  | 20              |                  |       |
| 39              | 0. 47,2          | 1,7   | 79              | 4. 51,7          | 23,8  | 30              | 13. 1,3          | 25,7  | 30              |                  |       |
| 40              | 0. 48,9          | 1,7   | 80              | 5. 19,8          | 28,1  | 40              | 13. 28,5         | 27,2  | 40              |                  |       |
|                 |                  |       |                 |                  |       | 50              | 13. 57,3         | 28,8  | 50              |                  |       |
|                 |                  |       |                 |                  |       | 87              | 14. 28,1         | 30,8  | 87              |                  |       |

When the Correction due to the Barometer and Thermometer is omitted, the Refraction is then directly taken from this Table.



## TABLE OF THE SUN'S PARALLAX.

TABLE X.

Sun's Parallax, supposing 8",8 for the *Mean* Parallax.

| Zenith<br>Dist. | Altitude. | 1 <sup>st</sup> Jan. | 1 <sup>st</sup> Feb.<br>Dec. | 1 <sup>st</sup> March<br>Nov. | 1 <sup>st</sup> April<br>October. | 1 <sup>st</sup> May<br>Sept. | 1 <sup>st</sup> June<br>August. | 1 <sup>st</sup> July. |
|-----------------|-----------|----------------------|------------------------------|-------------------------------|-----------------------------------|------------------------------|---------------------------------|-----------------------|
| 0               | 90        | 0,00                 | 0,00                         | 0,00                          | 0,00                              | 0,00                         | 0,00                            | 0,00                  |
| 4               | 86        | 0,62                 | 0,62                         | 0,62                          | 0,61                              | 0,61                         | 0,61                            | 0,60                  |
| 8               | 82        | 1,25                 | 1,24                         | 1,23                          | 1,22                              | 1,21                         | 1,21                            | 1,20                  |
| 12              | 78        | 1,86                 | 1,85                         | 1,84                          | 1,83                              | 1,81                         | 1,80                            | 1,80                  |
| 16              | 74        | 2,47                 | 2,46                         | 2,44                          | 2,43                              | 2,41                         | 2,39                            | 2,38                  |
| 20              | 70        | 3,06                 | 3,05                         | 3,03                          | 3,01                              | 2,99                         | 2,97                            | 2,96                  |
| 24              | 66        | 3,64                 | 3,63                         | 3,61                          | 3,58                              | 3,55                         | 3,53                            | 3,52                  |
| 28              | 62        | 4,20                 | 4,19                         | 4,16                          | 4,13                              | 4,10                         | 4,07                            | 4,06                  |
| 32              | 58        | 4,74                 | 4,73                         | 4,70                          | 4,66                              | 4,63                         | 4,59                            | 4,58                  |
| 36              | 54        | 5,26                 | 5,25                         | 5,21                          | 5,17                              | 5,13                         | 5,09                            | 5,08                  |
| 40              | 50        | 5,75                 | 5,74                         | 5,70                          | 5,66                              | 5,61                         | 5,57                            | 5,56                  |
| 44              | 46        | 6,22                 | 6,20                         | 6,16                          | 6,11                              | 6,06                         | 6,02                            | 6,01                  |
| 48              | 42        | 6,65                 | 6,64                         | 6,59                          | 6,54                              | 6,49                         | 6,44                            | 6,43                  |
| 52              | 38        | 7,05                 | 7,04                         | 6,99                          | 6,93                              | 6,88                         | 6,83                            | 6,82                  |
| 56              | 34        | 7,42                 | 7,40                         | 7,35                          | 7,29                              | 7,24                         | 7,19                            | 7,17                  |
| 58              | 32        | 7,59                 | 7,57                         | 7,52                          | 7,46                              | 7,40                         | 7,35                            | 7,33                  |
| 60              | 30        | 7,75                 | 7,73                         | 7,68                          | 7,62                              | 7,56                         | 7,51                            | 7,49                  |
| 62              | 28        | 7,90                 | 7,88                         | 7,83                          | 7,77                              | 7,71                         | 7,65                            | 7,63                  |
| 64              | 26        | 8,04                 | 8,03                         | 7,97                          | 7,91                              | 7,85                         | 7,79                            | 7,77                  |
| 66              | 24        | 8,17                 | 8,16                         | 8,10                          | 8,04                              | 7,97                         | 7,92                            | 7,90                  |
| 68              | 22        | 8,30                 | 8,28                         | 8,22                          | 8,16                              | 8,09                         | 8,04                            | 8,02                  |
| 70              | 20        | 8,41                 | 8,39                         | 8,33                          | 8,27                              | 8,20                         | 8,15                            | 8,13                  |
| 72              | 18        | 8,51                 | 8,49                         | 8,44                          | 8,37                              | 8,30                         | 8,25                            | 8,23                  |
| 74              | 16        | 8,60                 | 8,58                         | 8,53                          | 8,46                              | 8,39                         | 8,33                            | 8,31                  |
| 76              | 14        | 8,68                 | 8,66                         | 8,61                          | 8,54                              | 8,47                         | 8,41                            | 8,39                  |
| 78              | 12        | 8,75                 | 8,73                         | 8,67                          | 8,61                              | 8,54                         | 8,48                            | 8,46                  |
| 80              | 10        | 8,81                 | 8,79                         | 8,73                          | 8,67                              | 8,60                         | 8,54                            | 8,52                  |
| 82              | 8         | 8,86                 | 8,84                         | 8,78                          | 8,71                              | 8,64                         | 8,58                            | 8,56                  |
| 84              | 6         | 8,90                 | 8,88                         | 8,82                          | 8,75                              | 8,68                         | 8,62                            | 8,60                  |
| 86              | 4         | 8,92                 | 8,90                         | 8,84                          | 8,77                              | 8,70                         | 8,64                            | 8,62                  |
| 88              | 2         | 8,94                 | 8,92                         | 8,86                          | 8,79                              | 8,72                         | 8,66                            | 8,64                  |
| 90              | 0         | 8,95                 | 8,93                         | 8,87                          | 8,80                              | 8,73                         | 8,67                            | 8,65                  |

THE END.



TABLES OF MOTIONS

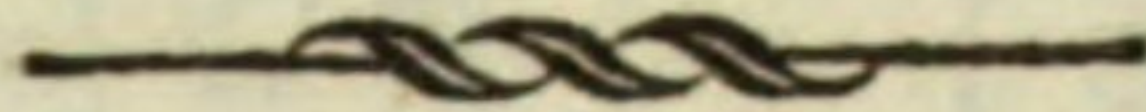
TABLE I. Motions of the Planets.



T A B L E S

OF THE

MOTIONS OF THE PLANETS.





T A B L E S

OF THE

MOTIONS OF THE PLANETS.



# TABLES OF MERCURY.

3

TABLE I. *Epochs of the Mean Longitude of Mercury.*

|            |      | Mean Long. |     |     |    | Aphelion. |     |     |    | Node. |     |     |    |
|------------|------|------------|-----|-----|----|-----------|-----|-----|----|-------|-----|-----|----|
| Years.     |      | s.         | D.  | M.  | s. | s.        | D.  | M.  | s. | s.    | D.  | M.  | s. |
| Nat. J. C. | o    | 8.         | 24. | 0.  | 44 | 7.        | 16. | 13. | 21 | 0.    | 24. | 17. | 48 |
|            | 100  | 11.        | 8.  | 5.  | 4  | 7.        | 17. | 47. | 6  | 0.    | 25. | 29. | 58 |
|            | 1400 | 7.         | 11. | 1.  | 24 | 8.        | 8.  | 5.  | 51 | 1.    | 11. | 8.  | 8  |
|            | 1500 | 9.         | 25. | 5.  | 44 | 8.        | 9.  | 39. | 36 | 1.    | 12. | 20. | 18 |
| B. N. S.   | 1600 | 10.        | 28. | 14. | 38 | 8.        | 11. | 13. | 21 | 1.    | 13. | 32. | 28 |
| C.         | 1700 | 1.         | 8.  | 13. | 26 | 8.        | 12. | 47. | 6  | 1.    | 14. | 44. | 38 |
| B.         | 1740 | 2.         | 7.  | 51. | 10 | 8.        | 13. | 24. | 36 | 1.    | 15. | 13. | 30 |
| B.         | 1760 | 2.         | 22. | 40. | 2  | 8.        | 13. | 43. | 21 | 1.    | 15. | 27. | 56 |
| B.         | 1780 | 3.         | 7.  | 28. | 52 | 8.        | 14. | 2.  | 6  | 1.    | 15. | 42. | 22 |
| B.         | 1786 | 2.         | 3.  | 52. | 47 | 8.        | 14. | 7.  | 44 | 1.    | 15. | 46. | 42 |
|            | 1787 | 3.         | 27. | 35. | 50 | 8.        | 14. | 8.  | 40 | 1.    | 15. | 47. | 25 |
|            | 1788 | 5.         | 25. | 24. | 26 | 8.        | 14. | 9.  | 36 | 1.    | 15. | 48. | 8  |
|            | 1789 | 7.         | 19. | 7.  | 30 | 8.        | 14. | 10. | 32 | 1.    | 15. | 48. | 51 |
|            | 1790 | 9.         | 12. | 50. | 33 | 8.        | 14. | 11. | 28 | 1.    | 15. | 49. | 35 |
| B.         | 1791 | 11.        | 6.  | 33. | 37 | 8.        | 14. | 12. | 25 | 1.    | 15. | 50. | 18 |
|            | 1792 | 1.         | 4.  | 22. | 13 | 8.        | 14. | 13. | 21 | 1.    | 15. | 51. | 1  |
|            | 1793 | 2.         | 28. | 5.  | 16 | 8.        | 14. | 14. | 17 | 1.    | 15. | 51. | 45 |
|            | 1794 | 4.         | 21. | 48. | 20 | 8.        | 14. | 15. | 13 | 1.    | 15. | 52. | 28 |
|            | 1795 | 6.         | 15. | 31. | 23 | 8.        | 14. | 16. | 10 | 1.    | 15. | 53. | 11 |
| B.         | 1796 | 8.         | 13. | 19. | 59 | 8.        | 14. | 17. | 6  | 1.    | 15. | 53. | 55 |
|            | 1797 | 10.        | 7.  | 3.  | 3  | 8.        | 14. | 18. | 2  | 1.    | 15. | 54. | 38 |
|            | 1798 | 0.         | 0.  | 46. | 6  | 8.        | 14. | 18. | 58 | 1.    | 15. | 55. | 21 |
|            | 1799 | 1.         | 24. | 29. | 10 | 8.        | 14. | 19. | 55 | 1.    | 15. | 56. | 4  |
|            | 1800 | 3.         | 18. | 12. | 13 | 8.        | 14. | 20. | 51 | 1.    | 15. | 56. | 48 |
| B.         | 1801 | 5.         | 11. | 55. | 16 | 8.        | 14. | 21. | 47 | 1.    | 15. | 57. | 31 |
|            | 1802 | 7.         | 5.  | 38. | 20 | 8.        | 14. | 22. | 43 | 1.    | 15. | 58. | 14 |
|            | 1803 | 8.         | 29. | 21. | 23 | 8.        | 14. | 23. | 40 | 1.    | 15. | 58. | 57 |
|            | 1804 | 10.        | 27. | 9.  | 59 | 8.        | 14. | 24. | 36 | 1.    | 15. | 59. | 41 |
|            | 1805 | 0.         | 20. | 53. | 3  | 8.        | 14. | 25. | 32 | 1.    | 16. | 0.  | 24 |
| B.         | 1806 | 2.         | 14. | 36. | 6  | 8.        | 14. | 26. | 29 | 1.    | 16. | 1.  | 8  |
|            | 1807 | 4.         | 8.  | 19. | 10 | 8.        | 14. | 27. | 25 | 1.    | 16. | 1.  | 51 |
|            | 1808 | 6.         | 6.  | 7.  | 46 | 8.        | 14. | 28. | 21 | 1.    | 16. | 2.  | 34 |
|            | 1809 | 7.         | 29. | 50. | 49 | 8.        | 14. | 29. | 17 | 1.    | 16. | 3.  | 17 |
|            | 1810 | 9.         | 23. | 33. | 53 | 8.        | 14. | 30. | 13 | 1.    | 16. | 4.  | 1  |
| B.         | 1811 | 11.        | 17. | 16. | 56 | 8.        | 14. | 31. | 10 | 1.    | 16. | 4.  | 44 |
|            | 1812 | 1.         | 15. | 5.  | 32 | 8.        | 14. | 32. | 6  | 1.    | 16. | 5.  | 27 |
|            | 1813 | 3.         | 8.  | 48. | 36 | 8.        | 14. | 33. | 2  | 1.    | 16. | 6.  | 10 |
|            | 1814 | 5.         | 2.  | 31. | 39 | 8.        | 14. | 33. | 58 | 1.    | 16. | 6.  | 54 |
|            | 1815 | 6.         | 26. | 14. | 43 | 8.        | 14. | 34. | 55 | 1.    | 16. | 7.  | 37 |
| B.         | 1816 | 8.         | 24. | 3.  | 19 | 8.        | 14. | 35. | 51 | 1.    | 16. | 8.  | 20 |
|            | 1817 | 10.        | 17. | 46. | 22 | 8.        | 14. | 36. | 47 | 1.    | 16. | 9.  | 4  |
|            | 1818 | 0.         | 11. | 29. | 26 | 8.        | 14. | 37. | 43 | 1.    | 16. | 9.  | 47 |
|            | 1819 | 2.         | 5.  | 12. | 29 | 8.        | 14. | 38. | 40 | 1.    | 16. | 10. | 30 |
|            | 1820 | 4.         | 3.  | 1.  | 5  | 8.        | 14. | 39. | 36 | 1.    | 16. | 11. | 14 |



## TABLES OF MERCURY.

TABLE II. Mean Motion of Mercury for *Years*.

|  | Years. | Mot. in Long.  | Mot. Aphelion. | Mot. Node. |
|--|--------|----------------|----------------|------------|
|  |        | s. D. M. s.    | s. D. M. s.    | D. M. s.   |
|  | 1      | 1. 23. 43. 3   | 0. 0. 0. 56    | 0. 0. 43   |
|  | 2      | 3. 17. 26. 7   | 0. 0. 1. 52    | 0. 1. 27   |
|  | 3      | 5. 11. 9. 10   | 0. 0. 2. 49    | 0. 2. 10   |
|  | B. 4   | 7. 8. 57. 46   | 0. 0. 3. 45    | 0. 2. 53   |
|  | 5      | 9. 2. 40. 50   | 0. 0. 4. 41    | 0. 3. 36   |
|  | 6      | 10. 26. 23. 53 | 0. 0. 5. 37    | 0. 4. 20   |
|  | 7      | 0. 20. 6. 57   | 0. 0. 6. 34    | 0. 5. 3    |
|  | B. 8   | 2. 17. 55. 33  | 0. 0. 7. 30    | 0. 5. 46   |
|  | 9      | 4. 11. 38. 36  | 0. 0. 8. 26    | 0. 6. 30   |
|  | 10     | 6. 5. 21. 40   | 0. 0. 9. 22    | 0. 7. 13   |
|  | B. 11  | 7. 29. 4. 43   | 0. 0. 10. 19   | 0. 7. 56   |
|  | 12     | 9. 26. 53. 19  | 0. 0. 11. 15   | 0. 8. 40   |
|  | 13     | 11. 20. 36. 23 | 0. 0. 12. 11   | 0. 9. 23   |
|  | 14     | 1. 14. 19. 26  | 0. 0. 13. 8    | 0. 10. 6   |
|  | 15     | 3. 8. 2. 29    | 0. 0. 14. 4    | 0. 10. 49  |
|  | B. 16  | 5. 5. 51. 6    | 0. 0. 15. 0    | 0. 11. 33  |
|  | 17     | 6. 29. 34. 9   | 0. 0. 15. 56   | 0. 12. 16  |
|  | 18     | 8. 23. 17. 12  | 0. 0. 16. 52   | 0. 12. 59  |
|  | 19     | 10. 17. 0. 16  | 0. 0. 17. 49   | 0. 13. 43  |
|  | B. 20  | 0. 14. 48. 52  | 0. 0. 18. 45   | 0. 14. 26  |
|  | 40     | 0. 29. 37. 44  | 0. 0. 37. 30   | 0. 28. 52  |
|  | 60     | 1. 14. 26. 36  | 0. 0. 56. 15   | 0. 43. 18  |
|  | 80     | 1. 29. 15. 28  | 0. 1. 15. 0    | 0. 57. 44  |
|  | 100    | 2. 14. 4. 20   | 0. 1. 33. 45   | 1. 12. 10  |
|  | 200    | 4. 28. 8. 40   | 0. 3. 7. 30    | 2. 24. 20  |
|  | 300    | 7. 12. 13. 0   | 0. 4. 41. 15   | 3. 36. 30  |
|  | 400    | 9. 26. 17. 20  | 0. 6. 15. 0    | 4. 48. 40  |
|  | 500    | 0. 10. 21. 40  | 0. 7. 48. 45   | 6. 0. 50   |
|  | 600    | 2. 24. 26. 0   | 0. 9. 22. 30   | 7. 13. 0   |
|  | 700    | 5. 8. 30. 20   | 0. 10. 56. 15  | 8. 25. 10  |
|  | 800    | 7. 22. 34. 40  | 0. 12. 30. 0   | 9. 37. 20  |
|  | 900    | 10. 6. 39. 0   | 0. 14. 3. 45   | 10. 49. 30 |
|  | 1000   | 0. 20. 43. 20  | 0. 15. 37. 30  | 12. 1. 40  |
|  | 1100   | 3. 4. 47. 40   | 0. 17. 11. 15  | 13. 13. 50 |
|  | 1200   | 5. 18. 52. 0   | 0. 18. 45. 0   | 14. 26. 0  |
|  | 1300   | 8. 2. 56. 20   | 0. 20. 18. 45  | 15. 38. 10 |
|  | 1400   | 10. 17. 0. 40  | 0. 21. 52. 30  | 16. 50. 20 |
|  | 1500   | 1. 1. 5. 0     | 0. 23. 26. 15  | 18. 2. 30  |
|  | 2000   | 1. 11. 26. 40  | 1. 1. 15. 0    | 24. 3. 20  |

Bifextiles.



# TABLES OF MERCURY.

5

TABLE III. Mean Motion of Mercury for *Days*.

| Days of Month. | JANUARY.   |     |     |    | Mot. Aph. | Mot. Node | Days of Month. | FEBRUARY.  |     |     |    | Mot. Aph. | Mot. Node | Days of Month. | MARCH.    |     |     |    | Mot. Aph. | Mot. Node |
|----------------|------------|-----|-----|----|-----------|-----------|----------------|------------|-----|-----|----|-----------|-----------|----------------|-----------|-----|-----|----|-----------|-----------|
|                | Mot. Long. |     |     |    |           |           |                | Mot. Long. |     |     |    |           |           |                | Mot Long. |     |     |    |           |           |
|                | s.         | D.  | M.  | s. |           |           |                | s.         | D.  | M.  | s. |           |           |                | s.        | D.  | M.  | s. |           |           |
| 1              | 0.         | 4.  | 5.  | 33 | 0         | 0         | 1              | 4.         | 10. | 57. | 22 | 5         | 4         | 1              | 8.        | 5.  | 32. | 33 | 9         | 7         |
| 2              | 0.         | 8.  | 11. | 5  | 0         | 0         | 2              | 4.         | 15. | 2.  | 54 | 5         | 4         | 2              | 8.        | 9.  | 38. | 6  | 9         | 7         |
| 3              | 0.         | 12. | 16. | 38 | 1         | 0         | 3              | 4.         | 19. | 8.  | 27 | 5         | 4         | 3              | 8.        | 13. | 43. | 39 | 10        | 7         |
| 4              | 0.         | 16. | 22. | 10 | 1         | 1         | 4              | 4.         | 23. | 13. | 59 | 6         | 4         | 4              | 8.        | 17. | 49. | 11 | 10        | 8         |
| 5              | 0.         | 20. | 27. | 43 | 1         | 1         | 5              | 4.         | 27. | 19. | 32 | 6         | 4         | 5              | 8.        | 21. | 54. | 44 | 10        | 8         |
| 6              | 0.         | 24. | 33. | 15 | 1         | 1         | 6              | 5.         | 1.  | 25. | 5  | 6         | 5         | 6              | 8.        | 26. | 0.  | 16 | 10        | 8         |
| 7              | 0.         | 28. | 38. | 48 | 1         | 1         | 7              | 5.         | 5.  | 30. | 38 | 6         | 5         | 7              | 9.        | 0.  | 5.  | 49 | 10        | 8         |
| 8              | 1.         | 2.  | 44. | 20 | 1         | 1         | 8              | 5.         | 9.  | 36. | 10 | 6         | 5         | 8              | 9.        | 4.  | 11. | 21 | 10        | 8         |
| 9              | 1.         | 6.  | 49. | 53 | 2         | 1         | 9              | 5.         | 13. | 41. | 42 | 6         | 5         | 9              | 9.        | 8.  | 16. | 54 | 10        | 8         |
| 10             | 1.         | 10. | 55. | 26 | 2         | 1         | 10             | 5.         | 17. | 47. | 15 | 6         | 5         | 10             | 9.        | 12. | 22. | 26 | 11        | 8         |
| 11             | 1.         | 15. | 0.  | 58 | 2         | 1         | 11             | 5.         | 21. | 52. | 47 | 6         | 5         | 11             | 9.        | 16. | 27. | 59 | 11        | 8         |
| 12             | 1.         | 19. | 6.  | 31 | 2         | 2         | 12             | 5.         | 25. | 58. | 20 | 7         | 5         | 12             | 9.        | 20. | 33. | 32 | 11        | 9         |
| 13             | 1.         | 23. | 12. | 3  | 2         | 2         | 13             | 6.         | 0.  | 3.  | 53 | 7         | 5         | 13             | 9.        | 24. | 39. | 4  | 11        | 9         |
| 14             | 1.         | 27. | 17. | 36 | 2         | 2         | 14             | 6.         | 4.  | 9.  | 25 | 7         | 5         | 14             | 9.        | 28. | 44. | 37 | 11        | 9         |
| 15             | 2.         | 1.  | 23. | 8  | 2         | 2         | 15             | 6.         | 8.  | 14. | 58 | 7         | 6         | 15             | 10.       | 2.  | 50. | 9  | 11        | 9         |
| 16             | 2.         | 5.  | 28. | 41 | 3         | 2         | 16             | 6.         | 12. | 20. | 30 | 7         | 6         | 16             | 10.       | 6.  | 55. | 42 | 12        | 9         |
| 17             | 2.         | 9.  | 34. | 13 | 3         | 2         | 17             | 6.         | 16. | 26. | 3  | 7         | 6         | 17             | 10.       | 11. | 1.  | 14 | 12        | 9         |
| 18             | 2.         | 13. | 39. | 46 | 3         | 2         | 18             | 6.         | 20. | 31. | 35 | 8         | 6         | 18             | 10.       | 15. | 6.  | 47 | 12        | 9         |
| 19             | 2.         | 17. | 45. | 19 | 3         | 2         | 19             | 6.         | 24. | 37. | 8  | 8         | 6         | 19             | 10.       | 19. | 12. | 19 | 12        | 9         |
| 20             | 2.         | 21. | 50. | 51 | 3         | 2         | 20             | 6.         | 28. | 42. | 40 | 8         | 6         | 20             | 10.       | 23. | 17. | 52 | 12        | 9         |
| 21             | 2.         | 25. | 56. | 24 | 3         | 3         | 21             | 7.         | 2.  | 48. | 13 | 8         | 6         | 21             | 10.       | 27. | 23. | 25 | 12        | 10        |
| 22             | 3.         | 0.  | 1.  | 56 | 4         | 3         | 22             | 7.         | 6.  | 53. | 46 | 8         | 6         | 22             | 11.       | 1.  | 28. | 57 | 12        | 10        |
| 23             | 3.         | 4.  | 7.  | 29 | 4         | 3         | 23             | 7.         | 10. | 59. | 18 | 8         | 6         | 23             | 11.       | 5.  | 34. | 30 | 13        | 10        |
| 24             | 3.         | 8.  | 13. | 2  | 4         | 3         | 24             | 7.         | 15. | 4.  | 51 | 8         | 7         | 24             | 11.       | 9.  | 40. | 2  | 13        | 10        |
| 25             | 3.         | 12. | 18. | 34 | 4         | 3         | 25             | 7.         | 19. | 10. | 23 | 9         | 7         | 25             | 11.       | 13. | 45. | 35 | 13        | 10        |
| 26             | 3.         | 16. | 24. | 7  | 4         | 3         | 26             | 7.         | 23. | 15. | 56 | 9         | 7         | 26             | 11.       | 17. | 51. | 7  | 13        | 10        |
| 27             | 3.         | 20. | 29. | 39 | 4         | 3         | 27             | 7.         | 27. | 21. | 28 | 9         | 7         | 27             | 11.       | 21. | 56. | 40 | 13        | 10        |
| 28             | 3.         | 24. | 35. | 12 | 4         | 3         | 28             | 8.         | 1.  | 27. | 1  | 9         | 7         | 28             | 11.       | 26. | 2.  | 12 | 13        | 10        |
| 29             | 3.         | 28. | 40. | 44 | 4         | 3         |                |            |     |     |    |           |           | 29             | 0.        | 0.  | 7.  | 45 | 14        | 10        |
| 30             | 4.         | 2.  | 46. | 17 | 5         | 4         |                |            |     |     |    |           |           | 30             | 0.        | 4.  | 13. | 18 | 14        | 11        |
| 31             | 4.         | 6.  | 51. | 50 | 5         | 4         |                |            |     |     |    |           |           | 31             | 0.        | 8.  | 18. | 50 | 14        | 11        |

In the Months JANUARY and FEBRUARY of a Bissextile Year, subtract 1 from the given Day of the Month.



TABLE III. Mean Motion of Mercury for *Days*.

| TABLE III. Mean Motion of Mercury for Days. |            |     |     |    |                        |                    |                    |            |     |     |    |                        |                    |                    |            |     |     |    |                        |                    |
|---------------------------------------------|------------|-----|-----|----|------------------------|--------------------|--------------------|------------|-----|-----|----|------------------------|--------------------|--------------------|------------|-----|-----|----|------------------------|--------------------|
| Days of the Month.                          | APRIL.     |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. | Days of the Month. | MAY.       |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. | Days of the Month. | JUNE.      |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. |
|                                             | Mot. Long. |     |     |    |                        |                    |                    | Mot. Long. |     |     |    |                        |                    |                    | Mot. Long. |     |     |    |                        |                    |
|                                             | S.         | D.  | M.  | S. |                        |                    |                    | S.         | D.  | M.  | S. |                        |                    |                    | S.         | D.  | M.  | S. |                        |                    |
| 1                                           | 0.         | 12. | 24. | 23 | 14                     | 11                 | 1                  | 4.         | 15. | 10. | 39 | 19                     | 14                 | 1                  | 8.         | 22. | 2.  | 29 | 23                     | 18                 |
| 2                                           | 0.         | 16. | 29. | 55 | 14                     | 11                 | 2                  | 4.         | 19. | 16. | 12 | 19                     | 15                 | 2                  | 8.         | 26. | 8.  | 1  | 24                     | 18                 |
| 3                                           | 0.         | 20. | 35. | 28 | 14                     | 11                 | 3                  | 4.         | 23. | 21. | 45 | 19                     | 15                 | 3                  | 9.         | 0.  | 13. | 34 | 24                     | 18                 |
| 4                                           | 0.         | 24. | 41. | 0  | 14                     | 11                 | 4                  | 4.         | 27. | 27. | 17 | 19                     | 15                 | 4                  | 9.         | 4.  | 19. | 6  | 24                     | 18                 |
| 5                                           | 0.         | 28. | 46. | 33 | 15                     | 11                 | 5                  | 5.         | 1.  | 32. | 50 | 19                     | 15                 | 5                  | 9.         | 8.  | 24. | 39 | 24                     | 19                 |
| 6                                           | 1.         | 2.  | 52. | 6  | 15                     | 11                 | 6                  | 5.         | 5.  | 38. | 22 | 19                     | 15                 | 6                  | 9.         | 12. | 30. | 12 | 24                     | 19                 |
| 7                                           | 1.         | 6.  | 57. | 38 | 15                     | 12                 | 7                  | 5.         | 9.  | 43. | 55 | 20                     | 15                 | 7                  | 9.         | 16. | 35. | 44 | 24                     | 19                 |
| 8                                           | 1.         | 11. | 3.  | 11 | 15                     | 12                 | 8                  | 5.         | 13. | 49. | 27 | 20                     | 15                 | 8                  | 9.         | 20. | 41. | 17 | 25                     | 19                 |
| 9                                           | 1.         | 15. | 8.  | 43 | 15                     | 12                 | 9                  | 5.         | 17. | 55. | 0  | 20                     | 15                 | 9                  | 9.         | 24. | 46. | 49 | 25                     | 19                 |
| 10                                          | 1.         | 19. | 14. | 16 | 15                     | 12                 | 10                 | 5.         | 22. | 0.  | 32 | 20                     | 16                 | 10                 | 9.         | 28. | 52. | 22 | 25                     | 19                 |
| 11                                          | 1.         | 23. | 19. | 48 | 16                     | 12                 | 11                 | 5.         | 26. | 6.  | 5  | 20                     | 16                 | 11                 | 10.        | 2.  | 57. | 54 | 25                     | 19                 |
| 12                                          | 1.         | 27. | 25. | 21 | 16                     | 12                 | 12                 | 6.         | 0.  | 11. | 38 | 20                     | 16                 | 12                 | 10.        | 7.  | 3.  | 27 | 25                     | 19                 |
| 13                                          | 2.         | 1.  | 30. | 53 | 16                     | 12                 | 13                 | 6.         | 4.  | 17. | 10 | 20                     | 16                 | 13                 | 10.        | 11. | 8.  | 59 | 25                     | 19                 |
| 14                                          | 2.         | 5.  | 36. | 26 | 16                     | 12                 | 14                 | 6.         | 8.  | 22. | 43 | 21                     | 16                 | 14                 | 10.        | 15. | 14. | 32 | 25                     | 20                 |
| 15                                          | 2.         | 9.  | 41. | 59 | 16                     | 13                 | 15                 | 6.         | 12. | 28. | 15 | 21                     | 16                 | 15                 | 10.        | 19. | 20. | 5  | 26                     | 20                 |
| 16                                          | 2.         | 13. | 47. | 31 | 16                     | 13                 | 16                 | 6.         | 16. | 33. | 48 | 21                     | 16                 | 16                 | 10.        | 23. | 25. | 37 | 26                     | 20                 |
| 17                                          | 2.         | 17. | 53. | 4  | 16                     | 13                 | 17                 | 6.         | 20. | 39. | 20 | 21                     | 16                 | 17                 | 10.        | 27. | 31. | 10 | 26                     | 20                 |
| 18                                          | 2.         | 21. | 58. | 36 | 17                     | 13                 | 18                 | 6.         | 24. | 44. | 53 | 21                     | 16                 | 18                 | 11.        | 1.  | 36. | 42 | 26                     | 20                 |
| 19                                          | 2.         | 26. | 4.  | 9  | 17                     | 13                 | 19                 | 6.         | 28. | 50. | 25 | 21                     | 17                 | 19                 | 11.        | 5.  | 42. | 15 | 26                     | 20                 |
| 20                                          | 3.         | 0.  | 9.  | 41 | 17                     | 13                 | 20                 | 7.         | 2.  | 55. | 58 | 22                     | 17                 | 20                 | 11.        | 9.  | 47. | 47 | 26                     | 20                 |
| 21                                          | 3.         | 4.  | 15. | 14 | 17                     | 13                 | 21                 | 7.         | 7.  | 1.  | 31 | 22                     | 17                 | 21                 | 11.        | 13. | 53. | 20 | 27                     | 20                 |
| 22                                          | 3.         | 8.  | 20. | 46 | 17                     | 13                 | 22                 | 7.         | 11. | 7.  | 3  | 22                     | 17                 | 22                 | 11.        | 17. | 58. | 52 | 27                     | 21                 |
| 23                                          | 3.         | 12. | 26. | 19 | 17                     | 13                 | 23                 | 7.         | 15. | 12. | 36 | 22                     | 17                 | 23                 | 11.        | 22. | 4.  | 25 | 27                     | 21                 |
| 24                                          | 3.         | 16. | 31. | 52 | 18                     | 14                 | 24                 | 7.         | 19. | 18. | 8  | 22                     | 17                 | 24                 | 11.        | 26. | 9.  | 57 | 27                     | 21                 |
| 25                                          | 3.         | 20. | 37. | 24 | 18                     | 14                 | 25                 | 7.         | 23. | 23. | 41 | 22                     | 17                 | 25                 | 0.         | 0.  | 15. | 30 | 27                     | 21                 |
| 26                                          | 3.         | 24. | 42. | 57 | 18                     | 14                 | 26                 | 7.         | 27. | 29. | 13 | 23                     | 17                 | 26                 | 0.         | 4.  | 21. | 3  | 27                     | 21                 |
| 27                                          | 3.         | 28. | 48. | 29 | 18                     | 14                 | 27                 | 8.         | 1.  | 34. | 46 | 23                     | 17                 | 27                 | 0.         | 8.  | 26. | 35 | 27                     | 21                 |
| 28                                          | 4.         | 2.  | 54. | 2  | 18                     | 14                 | 28                 | 8.         | 5.  | 40. | 18 | 23                     | 18                 | 28                 | 0.         | 12. | 32. | 8  | 28                     | 21                 |
| 29                                          | 4.         | 6.  | 59. | 34 | 18                     | 14                 | 29                 | 8.         | 9.  | 45. | 51 | 23                     | 18                 | 29                 | 0.         | 16. | 37. | 40 | 28                     | 21                 |
| 30                                          | 4.         | 11. | 5.  | 7  | 18                     | 14                 | 30                 | 8.         | 13. | 51. | 24 | 23                     | 18                 | 30                 | 0.         | 20. | 43. | 13 | 28                     | 22                 |
| 31                                          |            |     |     |    |                        |                    | 31                 | 8.         | 17. | 56. | 56 | 23                     | 18                 |                    |            |     |     |    |                        |                    |



# TABLES OF MERCURY.

7

TABLE III. Mean Motion of Mercury for *Days*.

| TABLE III. Mean Motion of Mercury for Days. |            |     |     |    |                        |                    |                    |            |     |     |    |                        |                    |                    |            |     |     |    |                        |                    |
|---------------------------------------------|------------|-----|-----|----|------------------------|--------------------|--------------------|------------|-----|-----|----|------------------------|--------------------|--------------------|------------|-----|-----|----|------------------------|--------------------|
| Days of the Month.                          | JULY.      |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. | Days of the Month. | AUGUST.    |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. | Days of the Month. | SEPTEMBER. |     |     |    | Mot. Aphelion.<br>SEC. | Mot. Node.<br>SEC. |
|                                             | Mot. Long. |     |     |    |                        |                    |                    | Mot. Long. |     |     |    |                        |                    |                    | Mot. Long. |     |     |    |                        |                    |
|                                             | S.         | D.  | M.  | S. |                        |                    |                    | S.         | D.  | M.  | S. |                        |                    |                    | S.         | D.  | M.  | S. |                        |                    |
| 1                                           | 0.         | 24. | 48. | 45 | 28                     | 22                 | 1                  | 5.         | 1.  | 40. | 35 | 33                     | 25                 | 1                  | 9.         | 8.  | 32. | 24 | 38                     | 29                 |
| 2                                           | 0.         | 28. | 54. | 18 | 28                     | 22                 | 2                  | 5.         | 5.  | 46. | 7  | 33                     | 25                 | 2                  | 9.         | 12. | 37. | 57 | 38                     | 29                 |
| 3                                           | 1.         | 2.  | 59. | 51 | 28                     | 22                 | 3                  | 5.         | 9.  | 51. | 40 | 33                     | 26                 | 3                  | 9.         | 16. | 43. | 29 | 38                     | 29                 |
| 4                                           | 1.         | 7.  | 5.  | 23 | 29                     | 22                 | 4                  | 5.         | 13. | 57. | 12 | 33                     | 26                 | 4                  | 9.         | 20. | 49. | 2  | 38                     | 29                 |
| 5                                           | 1.         | 11. | 10. | 56 | 29                     | 22                 | 5                  | 5.         | 18. | 2.  | 45 | 33                     | 26                 | 5                  | 9.         | 24. | 54. | 34 | 38                     | 29                 |
| 6                                           | 1.         | 15. | 16. | 28 | 29                     | 22                 | 6                  | 5.         | 22. | 8.  | 17 | 34                     | 26                 | 6                  | 9.         | 29. | 0.  | 7  | 38                     | 30                 |
| 7                                           | 1.         | 19. | 22. | 1  | 29                     | 22                 | 7                  | 5.         | 26. | 13. | 50 | 34                     | 26                 | 7                  | 10.        | 3.  | 5.  | 39 | 39                     | 30                 |
| 8                                           | 1.         | 23. | 27. | 33 | 29                     | 22                 | 8                  | 6.         | 0.  | 19. | 23 | 34                     | 26                 | 8                  | 10.        | 7.  | 11. | 12 | 39                     | 30                 |
| 9                                           | 1.         | 27. | 33. | 6  | 29                     | 23                 | 9                  | 6.         | 4.  | 24. | 55 | 34                     | 26                 | 9                  | 10.        | 11. | 16. | 44 | 39                     | 30                 |
| 10                                          | 2.         | 1.  | 38. | 38 | 29                     | 23                 | 10                 | 6.         | 8.  | 30. | 28 | 34                     | 26                 | 10                 | 10.        | 15. | 22. | 17 | 39                     | 30                 |
| 11                                          | 2.         | 5.  | 44. | 11 | 30                     | 23                 | 11                 | 6.         | 12. | 36. | 0  | 34                     | 26                 | 11                 | 10.        | 19. | 27. | 50 | 39                     | 30                 |
| 12                                          | 2.         | 9.  | 49. | 44 | 30                     | 23                 | 12                 | 6.         | 16. | 41. | 33 | 35                     | 27                 | 12                 | 10.        | 23. | 33. | 22 | 39                     | 30                 |
| 13                                          | 2.         | 13. | 55. | 16 | 30                     | 23                 | 13                 | 6.         | 20. | 47. | 5  | 35                     | 27                 | 13                 | 10.        | 27. | 38. | 55 | 39                     | 30                 |
| 14                                          | 2.         | 18. | 0.  | 49 | 30                     | 23                 | 14                 | 6.         | 24. | 52. | 38 | 35                     | 27                 | 14                 | 11.        | 1.  | 44. | 27 | 40                     | 31                 |
| 15                                          | 2.         | 22. | 6.  | 21 | 30                     | 23                 | 15                 | 6.         | 28. | 58. | 11 | 35                     | 27                 | 15                 | 11.        | 5.  | 50. | 0  | 40                     | 31                 |
| 16                                          | 2.         | 26. | 11. | 54 | 30                     | 23                 | 16                 | 7.         | 3.  | 3.  | 43 | 35                     | 27                 | 16                 | 11.        | 9.  | 55. | 32 | 40                     | 31                 |
| 17                                          | 3.         | 0.  | 17. | 26 | 31                     | 24                 | 17                 | 7.         | 7.  | 9.  | 16 | 35                     | 27                 | 17                 | 11.        | 14. | 1.  | 5  | 40                     | 31                 |
| 18                                          | 3.         | 4.  | 22. | 59 | 31                     | 24                 | 18                 | 7.         | 11. | 14. | 48 | 35                     | 27                 | 18                 | 11.        | 18. | 6.  | 37 | 40                     | 31                 |
| 19                                          | 3.         | 8.  | 28. | 31 | 31                     | 24                 | 19                 | 7.         | 15. | 20. | 21 | 36                     | 27                 | 19                 | 11.        | 22. | 12. | 10 | 40                     | 31                 |
| 20                                          | 3.         | 12. | 34. | 4  | 31                     | 24                 | 20                 | 7.         | 19. | 25. | 53 | 36                     | 28                 | 20                 | 11.        | 26. | 17. | 43 | 41                     | 31                 |
| 21                                          | 3.         | 16. | 39. | 37 | 31                     | 24                 | 21                 | 7.         | 23. | 31. | 26 | 36                     | 28                 | 21                 | 0.         | 0.  | 23. | 16 | 41                     | 31                 |
| 22                                          | 3.         | 20. | 45. | 9  | 31                     | 24                 | 22                 | 7.         | 27. | 36. | 58 | 36                     | 28                 | 22                 | 0.         | 4.  | 28. | 48 | 41                     | 32                 |
| 23                                          | 3.         | 24. | 50. | 42 | 31                     | 24                 | 23                 | 8.         | 1.  | 42. | 31 | 36                     | 28                 | 23                 | 0.         | 8.  | 34. | 20 | 41                     | 32                 |
| 24                                          | 3.         | 28. | 56. | 14 | 32                     | 24                 | 24                 | 8.         | 5.  | 48. | 4  | 36                     | 28                 | 24                 | 0.         | 12. | 39. | 53 | 41                     | 32                 |
| 25                                          | 4.         | 3.  | 1.  | 47 | 32                     | 25                 | 25                 | 8.         | 9.  | 53. | 36 | 37                     | 28                 | 25                 | 0.         | 16. | 45. | 25 | 41                     | 32                 |
| 26                                          | 4.         | 7.  | 7.  | 19 | 32                     | 25                 | 26                 | 8.         | 13. | 59. | 9  | 37                     | 28                 | 26                 | 0.         | 20. | 50. | 58 | 41                     | 32                 |
| 27                                          | 4.         | 11. | 12. | 52 | 32                     | 25                 | 27                 | 8.         | 18. | 4.  | 41 | 37                     | 28                 | 27                 | 0.         | 24. | 56. | 30 | 42                     | 32                 |
| 28                                          | 4.         | 15. | 18. | 24 | 32                     | 25                 | 28                 | 8.         | 22. | 10. | 14 | 37                     | 29                 | 28                 | 0.         | 29. | 2.  | 3  | 42                     | 32                 |
| 29                                          | 4.         | 19. | 23. | 57 | 32                     | 25                 | 29                 | 8.         | 26. | 15. | 46 | 37                     | 29                 | 29                 | 1.         | 3.  | 7.  | 36 | 42                     | 32                 |
| 30                                          | 4.         | 23. | 29. | 30 | 33                     | 25                 | 30                 | 9.         | 0.  | 21. | 19 | 37                     | 29                 | 30                 | 1.         | 7.  | 13. | 8  | 42                     | 32                 |
| 31                                          | 4.         | 27. | 35. | 2  | 33                     | 25                 | 31                 | 9.         | 4.  | 26. | 51 | 37                     | 29                 |                    |            |     |     |    |                        |                    |



TABLE III. Mean Motion of Mercury for *Days*.

| Days of the Month. | OCTOBER.   |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | NOVEMBER.  |      |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | DECEMBER.  |     |      |      | Mot. Aphelion. | Mot. Node. |
|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|------|-----|----|----------------|------------|--------------------|------------|-----|------|------|----------------|------------|
|                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |      |     |    |                |            |                    | Mot. Long. |     |      |      |                |            |
|                    | S.         | D.  | M.  | S. |                |            |                    | SEC.       | SEC. | S.  | D. |                |            |                    | M.         | S.  | SEC. | SEC. |                |            |
| 1                  | 1.         | 11. | 18. | 41 | 42             | 33         | 1                  | 5.         | 18.  | 10. | 30 | 47             | 36         | 1                  | 9.         | 20. | 56.  | 47   | 52             | 40         |
| 2                  | 1.         | 15. | 24. | 13 | 42             | 33         | 2                  | 5.         | 22.  | 16. | 3  | 47             | 36         | 2                  | 9.         | 25. | 2.   | 19   | 52             | 40         |
| 3                  | 1.         | 19. | 29. | 46 | 43             | 33         | 3                  | 5.         | 26.  | 21. | 35 | 47             | 36         | 3                  | 9.         | 29. | 7.   | 52   | 52             | 40         |
| 4                  | 1.         | 23. | 35. | 19 | 43             | 33         | 4                  | 6.         | 0.   | 27. | 8  | 47             | 37         | 4                  | 10.        | 3.  | 13.  | 24   | 52             | 40         |
| 5                  | 1.         | 27. | 40. | 51 | 43             | 33         | 5                  | 6.         | 4.   | 32. | 40 | 48             | 37         | 5                  | 10.        | 7.  | 18.  | 57   | 52             | 40         |
| 6                  | 2.         | 1.  | 46. | 23 | 43             | 33         | 6                  | 6.         | 8.   | 38. | 13 | 48             | 37         | 6                  | 10.        | 11. | 24.  | 30   | 52             | 40         |
| 7                  | 2.         | 5.  | 51. | 56 | 43             | 33         | 7                  | 6.         | 12.  | 43. | 45 | 48             | 37         | 7                  | 10.        | 15. | 30.  | 2    | 53             | 41         |
| 8                  | 2.         | 9.  | 57. | 29 | 43             | 33         | 8                  | 6.         | 16.  | 49. | 18 | 48             | 37         | 8                  | 10.        | 19. | 35.  | 35   | 53             | 41         |
| 9                  | 2.         | 14. | 3.  | 1  | 44             | 34         | 9                  | 6.         | 20.  | 54. | 50 | 48             | 37         | 9                  | 10.        | 23. | 41.  | 7    | 53             | 41         |
| 10                 | 2.         | 18. | 8.  | 34 | 44             | 34         | 10                 | 6.         | 25.  | 0.  | 23 | 48             | 37         | 10                 | 10.        | 27. | 46.  | 40   | 53             | 41         |
| 11                 | 2.         | 22. | 14. | 6  | 44             | 34         | 11                 | 6.         | 29.  | 5.  | 56 | 49             | 37         | 11                 | 11.        | 1.  | 52.  | 12   | 53             | 41         |
| 12                 | 2.         | 26. | 19. | 39 | 44             | 34         | 12                 | 7.         | 3.   | 11. | 28 | 49             | 37         | 12                 | 11.        | 5.  | 57.  | 45   | 53             | 41         |
| 13                 | 3.         | 0.  | 25. | 11 | 44             | 34         | 13                 | 7.         | 7.   | 17. | 1  | 49             | 38         | 13                 | 11.        | 10. | 3.   | 17   | 53             | 41         |
| 14                 | 3.         | 4.  | 30. | 44 | 44             | 34         | 14                 | 7.         | 11.  | 22. | 33 | 49             | 38         | 14                 | 11.        | 14. | 8.   | 50   | 54             | 41         |
| 15                 | 3.         | 8.  | 36. | 17 | 44             | 34         | 15                 | 7.         | 15.  | 28. | 6  | 49             | 38         | 15                 | 11.        | 18. | 14.  | 22   | 54             | 41         |
| 16                 | 3.         | 12. | 41. | 49 | 45             | 34         | 16                 | 7.         | 19.  | 33. | 38 | 49             | 38         | 16                 | 11.        | 22. | 19.  | 55   | 54             | 42         |
| 17                 | 3.         | 16. | 47. | 22 | 45             | 35         | 17                 | 7.         | 23.  | 39. | 11 | 49             | 38         | 17                 | 11.        | 26. | 25.  | 28   | 54             | 42         |
| 18                 | 3.         | 20. | 52. | 54 | 45             | 35         | 18                 | 7.         | 27.  | 44. | 43 | 50             | 38         | 18                 | 0.         | 0.  | 31.  | 0    | 54             | 42         |
| 19                 | 3.         | 24. | 58. | 27 | 45             | 35         | 19                 | 8.         | 1.   | 50. | 16 | 50             | 38         | 19                 | 0.         | 4.  | 36.  | 33   | 54             | 42         |
| 20                 | 3.         | 29. | 3.  | 59 | 45             | 35         | 20                 | 8.         | 5.   | 55. | 49 | 50             | 38         | 20                 | 0.         | 8.  | 42.  | 5    | 55             | 42         |
| 21                 | 4.         | 3.  | 9.  | 32 | 45             | 35         | 21                 | 8.         | 10.  | 1.  | 21 | 50             | 38         | 21                 | 0.         | 12. | 47.  | 38   | 55             | 42         |
| 22                 | 4.         | 7.  | 15. | 4  | 45             | 35         | 22                 | 8.         | 14.  | 6.  | 54 | 50             | 39         | 22                 | 0.         | 16. | 53.  | 10   | 55             | 42         |
| 23                 | 4.         | 11. | 20. | 37 | 46             | 35         | 23                 | 8.         | 18.  | 12. | 26 | 50             | 39         | 23                 | 0.         | 20. | 58.  | 43   | 55             | 42         |
| 24                 | 4.         | 15. | 26. | 10 | 46             | 35         | 24                 | 8.         | 22.  | 17. | 59 | 51             | 39         | 24                 | 0.         | 25. | 4.   | 16   | 55             | 42         |
| 25                 | 4.         | 19. | 31. | 42 | 46             | 35         | 25                 | 8.         | 26.  | 23. | 31 | 51             | 39         | 25                 | 0.         | 29. | 9.   | 48   | 55             | 43         |
| 26                 | 4.         | 23. | 37. | 15 | 46             | 35         | 26                 | 9.         | 0.   | 29. | 4  | 51             | 39         | 26                 | 1.         | 3.  | 15.  | 21   | 55             | 43         |
| 27                 | 4.         | 27. | 42. | 47 | 46             | 36         | 27                 | 9.         | 4.   | 34. | 36 | 51             | 39         | 27                 | 1.         | 7.  | 20.  | 53   | 56             | 43         |
| 28                 | 5.         | 1.  | 48. | 20 | 46             | 36         | 28                 | 9.         | 8.   | 40. | 9  | 51             | 40         | 28                 | 1.         | 11. | 26.  | 26   | 56             | 43         |
| 29                 | 5.         | 5.  | 53. | 52 | 47             | 36         | 29                 | 9.         | 12.  | 45. | 42 | 51             | 40         | 29                 | 1.         | 15. | 31.  | 58   | 56             | 43         |
| 30                 | 5.         | 9.  | 59. | 25 | 47             | 36         | 30                 | 9.         | 16.  | 51. | 14 | 51             | 40         | 30                 | 1.         | 19. | 37.  | 31   | 56             | 43         |
| 31                 | 5.         | 14. | 4.  | 57 | 47             | 36         |                    |            |      |     |    |                |            | 31                 | 1.         | 23. | 43.  | 3    | 56             | 43         |



TABLE IV. Mean Motion of Mercury for *Hours*, *Minutes*, and *Seconds*.

| Hours. | Mot. Long. |     |    | Mot. Long. |    |    | Mot. Long. |     |    |
|--------|------------|-----|----|------------|----|----|------------|-----|----|
|        | D.         | M.  | S. | Min.       | "  |    | Min.       | "   |    |
|        |            |     |    | Sec.       | "  |    | Sec.       | "   |    |
| 1      | 0.         | 10. | 14 | 1          | 0. | 10 | 31         | 5.  | 17 |
| 2      | 0.         | 20. | 28 | 2          | 0. | 20 | 32         | 5.  | 27 |
| 3      | 0.         | 30. | 41 | 3          | 0. | 31 | 33         | 5.  | 38 |
| 4      | 0.         | 40. | 55 | 4          | 0. | 41 | 34         | 5.  | 48 |
| 5      | 0.         | 51. | 9  | 5          | 0. | 51 | 35         | 5.  | 58 |
| 6      | 1.         | 1.  | 23 | 6          | 1. | 1  | 36         | 6.  | 8  |
| 7      | 1.         | 11. | 37 | 7          | 1. | 12 | 37         | 6.  | 18 |
| 8      | 1.         | 21. | 51 | 8          | 1. | 22 | 38         | 6.  | 29 |
| 9      | 1.         | 32. | 5  | 9          | 1. | 32 | 39         | 6.  | 39 |
| 10     | 1.         | 42. | 18 | 10         | 1. | 42 | 40         | 6.  | 49 |
| 11     | 1.         | 52. | 32 | 11         | 1. | 52 | 41         | 6.  | 59 |
| 12     | 2.         | 2.  | 46 | 12         | 2. | 3  | 42         | 7.  | 10 |
| 13     | 2.         | 13. | 0  | 13         | 2. | 13 | 43         | 7.  | 20 |
| 14     | 2.         | 23. | 14 | 14         | 2. | 23 | 44         | 7.  | 30 |
| 15     | 2.         | 33. | 28 | 15         | 2. | 33 | 45         | 7.  | 40 |
| 16     | 2.         | 43. | 42 | 16         | 2. | 44 | 46         | 7.  | 51 |
| 17     | 2.         | 53. | 55 | 17         | 2. | 54 | 47         | 8.  | 1  |
| 18     | 3.         | 4.  | 9  | 18         | 3. | 4  | 48         | 8.  | 11 |
| 19     | 3.         | 14. | 23 | 19         | 3. | 14 | 49         | 8.  | 21 |
| 20     | 3.         | 24. | 38 | 20         | 3. | 24 | 50         | 8.  | 31 |
| 21     | 3.         | 34. | 52 | 21         | 3. | 35 | 51         | 8.  | 42 |
| 22     | 3.         | 45. | 5  | 22         | 3. | 45 | 52         | 8.  | 52 |
| 23     | 3.         | 55. | 19 | 23         | 3. | 55 | 53         | 9.  | 2  |
| 24     | 4.         | 5.  | 32 | 24         | 4. | 5  | 54         | 9.  | 12 |
|        |            |     |    | 25         | 4. | 16 | 55         | 9.  | 23 |
|        |            |     |    | 26         | 4. | 26 | 56         | 9.  | 33 |
|        |            |     |    | 27         | 4. | 36 | 57         | 9.  | 43 |
|        |            |     |    | 28         | 4. | 46 | 58         | 9.  | 53 |
|        |            |     |    | 29         | 4. | 57 | 59         | 10. | 4  |
|        |            |     |    | 30         | 5. | 7  | 60         | 10. | 14 |



ARGUMENT. *Mean Anomaly of Mercury.*

| Sig. O.— |           |     |    | Differ. |    | Sig. I.— |     |    |     | Differ. |           | Sig. II.— |    |     |    | Differ. |  |  |
|----------|-----------|-----|----|---------|----|----------|-----|----|-----|---------|-----------|-----------|----|-----|----|---------|--|--|
| D.       | D.        | M.  | S. | M.      | S. | D.       | M.  | S. | M.  | S.      | D.        | M.        | S. | M.  | S. | D.      |  |  |
| 0        | 0.        | 0.  | 0  | 19.     | 36 | 9.       | 34. | 42 | 18. | 14      | 17.       | 46.       | 53 | 13. | 53 | 30      |  |  |
| 1        | 0.        | 19. | 36 | 19.     | 35 | 9.       | 52. | 56 | 18. | 8       | 18.       | 0.        | 46 | 13. | 41 | 29      |  |  |
| 2        | 0.        | 39. | 11 | 19.     | 35 | 10.      | 11. | 4  | 18. | 2       | 18.       | 14.       | 27 | 13. | 29 | 28      |  |  |
| 3        | 0.        | 58. | 46 | 19.     | 35 | 10.      | 29. | 6  | 17. | 56      | 18.       | 27.       | 56 | 13. | 16 | 27      |  |  |
| 4        | 1.        | 18. | 21 | 19.     | 34 | 10.      | 47. | 2  | 17. | 50      | 18.       | 41.       | 12 | 13. | 2  | 26      |  |  |
| 5        | 1.        | 37. | 55 | 19.     | 33 | 11.      | 4.  | 52 | 17. | 43      | 18.       | 54.       | 14 | 12. | 49 | 25      |  |  |
| 6        | 1.        | 57. | 28 | 19.     | 32 | 11.      | 22. | 35 | 17. | 37      | 19.       | 7.        | 3  | 12. | 36 | 24      |  |  |
| 7        | 2.        | 17. | 0  | 19.     | 31 | 11.      | 40. | 12 | 17. | 30      | 19.       | 19.       | 39 | 12. | 22 | 23      |  |  |
| 8        | 2.        | 36. | 31 | 19.     | 29 | 11.      | 57. | 42 | 17. | 23      | 19.       | 32.       | 1  | 12. | 7  | 22      |  |  |
| 9        | 2.        | 56. | 0  | 19.     | 28 | 12.      | 15. | 5  | 17. | 16      | 19.       | 44.       | 8  | 11. | 53 | 21      |  |  |
| 10       | 3.        | 15. | 28 | 19.     | 26 | 12.      | 32. | 21 | 17. | 9       | 19.       | 56.       | 1  | 11. | 39 | 20      |  |  |
| 11       | 3.        | 34. | 54 | 19.     | 24 | 12.      | 49. | 30 | 17. | 1       | 20.       | 7.        | 40 | 11. | 23 | 19      |  |  |
| 12       | 3.        | 54. | 18 | 19.     | 22 | 13.      | 6.  | 31 | 16. | 53      | 20.       | 19.       | 3  | 11. | 8  | 18      |  |  |
| 13       | 4.        | 13. | 40 | 19.     | 20 | 13.      | 23. | 24 | 16. | 45      | 20.       | 30.       | 11 | 10. | 52 | 17      |  |  |
| 14       | 4.        | 33. | 0  | 19.     | 18 | 13.      | 40. | 9  | 16. | 37      | 20.       | 41.       | 3  | 10. | 37 | 16      |  |  |
| 15       | 4.        | 52. | 18 | 19.     | 14 | 13.      | 56. | 46 | 16. | 28      | 20.       | 51.       | 40 | 10. | 20 | 15      |  |  |
| 16       | 5.        | 11. | 32 | 19.     | 12 | 14.      | 13. | 14 | 16. | 20      | 21.       | 2.        | 0  | 10. | 4  | 14      |  |  |
| 17       | 5.        | 30. | 44 | 19.     | 9  | 14.      | 29. | 34 | 16. | 11      | 21.       | 12.       | 4  | 9.  | 47 | 13      |  |  |
| 18       | 5.        | 49. | 53 | 19.     | 6  | 14.      | 45. | 45 | 16. | 1       | 21.       | 21.       | 51 | 9.  | 30 | 12      |  |  |
| 19       | 6.        | 8.  | 59 | 19.     | 3  | 15.      | 1.  | 46 | 15. | 52      | 21.       | 31.       | 21 | 9.  | 12 | 11      |  |  |
| 20       | 6.        | 28. | 2  | 18.     | 59 | 15.      | 17. | 38 | 15. | 43      | 21.       | 40.       | 33 | 8.  | 54 | 10      |  |  |
| 21       | 6.        | 47. | 1  | 18.     | 55 | 15.      | 33. | 21 | 15. | 33      | 21.       | 49.       | 27 | 8.  | 37 | 9       |  |  |
| 22       | 7.        | 5.  | 56 | 18.     | 51 | 15.      | 48. | 54 | 15. | 23      | 21.       | 58.       | 4  | 8.  | 18 | 8       |  |  |
| 23       | 7.        | 24. | 47 | 18.     | 47 | 16.      | 4.  | 17 | 15. | 12      | 22.       | 6.        | 22 | 7.  | 59 | 7       |  |  |
| 24       | 7.        | 43. | 34 | 18.     | 43 | 16.      | 19. | 29 | 15. | 2       | 22.       | 14.       | 21 | 7.  | 41 | 6       |  |  |
| 25       | 8.        | 2.  | 17 | 18.     | 39 | 16.      | 34. | 31 | 14. | 51      | 22.       | 22.       | 2  | 7.  | 21 | 5       |  |  |
| 26       | 8.        | 20. | 56 | 18.     | 34 | 16.      | 49. | 22 | 14. | 40      | 22.       | 29.       | 23 | 7.  | 1  | 4       |  |  |
| 27       | 8.        | 39. | 30 | 18.     | 29 | 17.      | 4.  | 2  | 14. | 29      | 22.       | 36.       | 24 | 6.  | 41 | 3       |  |  |
| 28       | 8.        | 57. | 59 | 18.     | 24 | 17.      | 18. | 31 | 14. | 17      | 22.       | 43.       | 5  | 6.  | 21 | 2       |  |  |
| 29       | 9.        | 16. | 23 | 18.     | 19 | 17.      | 32. | 48 | 14. | 5       | 22.       | 49.       | 26 | 6.  | 0  | 1       |  |  |
| 30       | 9.        | 34. | 42 |         |    | 17.      | 46. | 53 |     |         | 22.       | 55.       | 26 |     |    | 0       |  |  |
|          | Sig. XI.+ |     |    |         |    | Sig. X.+ |     |    |     |         | Sig. IX.+ |           |    |     |    |         |  |  |



## 11

ARGUMENT. *Mean Anomaly of Mercury.*

第 2



## TABLES OF MERCURY.

TABLE VI. Logarithms of the Distance of Mercury from the Sun.

| ARGUMENT. <i>Mean Anomaly of Mercury.</i> |             |         |            |         |             |         |    |
|-------------------------------------------|-------------|---------|------------|---------|-------------|---------|----|
|                                           | Sig. O.     |         | Sig. I.    |         | Sig. II.    |         |    |
| D.                                        | Logarithms. | Differ. | Logarithms | Differ. | Logarithms. | Differ. | D. |
| 0                                         | 9,668993    | 8       | 9,661990   | 476     | 9,640787    | 955     | 30 |
| 1                                         | 9,668985    | 23      | 9,661514   | 492     | 9,639832    | 970     | 29 |
| 2                                         | 9,668962    | 38      | 9,661022   | 507     | 9,638862    | 987     | 28 |
| 3                                         | 9,668924    | 54      | 9,660515   | 524     | 9,637875    | 1003    | 27 |
| 4                                         | 9,668870    | 70      | 9,659991   | 539     | 9,636872    | 1019    | 26 |
| 5                                         | 9,668800    | 85      | 9,659452   | 555     | 9,635853    | 1034    | 25 |
| 6                                         | 9,668715    | 101     | 9,658897   | 571     | 9,634819    | 1051    | 24 |
| 7                                         | 9,668614    | 117     | 9,658326   | 587     | 9,633768    | 1066    | 23 |
| 8                                         | 9,668497    | 132     | 9,657739   | 603     | 9,632702    | 1083    | 22 |
| 9                                         | 9,668365    | 147     | 9,657136   | 619     | 9,631619    | 1098    | 21 |
| 10                                        | 9,668218    | 163     | 9,656517   | 635     | 9,630521    | 1114    | 20 |
| 11                                        | 9,668055    | 178     | 9,655882   | 650     | 9,629407    | 1130    | 19 |
| 12                                        | 9,667877    | 194     | 9,655232   | 667     | 9,628277    | 1146    | 18 |
| 13                                        | 9,667683    | 210     | 9,654565   | 682     | 9,627131    | 1161    | 17 |
| 14                                        | 9,667473    | 226     | 9,653883   | 698     | 9,625970    | 1177    | 16 |
| 15                                        | 9,667247    | 241     | 9,653185   | 714     | 9,624793    | 1193    | 15 |
| 16                                        | 9,667006    | 256     | 9,652471   | 731     | 9,623600    | 1208    | 14 |
| 17                                        | 9,666760    | 272     | 9,651740   | 746     | 9,622392    | 1223    | 13 |
| 18                                        | 9,666478    | 287     | 9,650994   | 763     | 9,621169    | 1239    | 12 |
| 19                                        | 9,666191    | 304     | 9,650231   | 778     | 9,619930    | 1254    | 11 |
| 20                                        | 9,665887    | 319     | 9,649453   | 795     | 9,618676    | 1269    | 10 |
| 21                                        | 9,665568    | 335     | 9,648658   | 810     | 9,617407    | 1284    | 9  |
| 22                                        | 9,665233    | 350     | 9,647848   | 827     | 9,616123    | 1300    | 8  |
| 23                                        | 9,664883    | 366     | 9,647021   | 842     | 9,614823    | 1314    | 7  |
| 24                                        | 9,664517    | 383     | 9,646179   | 858     | 9,613509    | 1330    | 6  |
| 25                                        | 9,664134    | 398     | 9,645321   | 875     | 9,612179    | 1344    | 5  |
| 26                                        | 9,663736    | 412     | 9,644446   | 891     | 9,610835    | 1358    | 4  |
| 27                                        | 9,663324    | 429     | 9,643555   | 908     | 9,609477    | 1373    | 3  |
| 28                                        | 9,662895    | 445     | 9,642647   | 923     | 9,608104    | 1387    | 2  |
| 29                                        | 9,662450    | 460     | 9,641724   | 937     | 9,606717    | 1401    | 1  |
| 30                                        | 9,661990    |         | 9,640787   |         | 9,605316    |         | 0  |
|                                           | Sig. XI.    |         | Sig. X.    |         | Sig. IX.    |         |    |



TABLE VII. Logarithms of the Distance of Mercury from the Sun.

| ARGUMENT. <i>Mean Anomaly of Mercury.</i> |             |         |             |         |             |         |    |
|-------------------------------------------|-------------|---------|-------------|---------|-------------|---------|----|
|                                           | Sig. III.   |         | Sig. IV.    |         | Sig. V.     |         |    |
| D.                                        | Logarithms. | Differ. | Logarithms. | Differ. | Logarithms. | Differ. | D. |
| 0                                         | 9,605316    |         | 9,557972    |         | 9,510077    |         | 30 |
| 1                                         | 9,603901    | 1415    | 9,556280    | 1692    | 9,508747    | 1330    | 29 |
| 2                                         | 9,602472    | 1429    | 9,554586    | 1694    | 9,507447    | 1300    | 28 |
| 3                                         | 9,601029    | 1443    | 9,552890    | 1696    | 9,506179    | 1268    | 27 |
|                                           |             | 1456    |             | 1695    |             | 1236    |    |
| 4                                         | 9,599573    | 1469    | 9,551195    | 1695    | 9,504943    | 1201    | 26 |
| 5                                         | 9,598104    | 1482    | 9,549500    | 1693    | 9,503742    | 1167    | 25 |
| 6                                         | 9,596622    | 1495    | 9,547807    | 1691    | 9,502575    | 1130    | 24 |
| 7                                         | 9,595127    | 1507    | 9,546116    | 1688    | 9,501445    | 1092    | 23 |
| 8                                         | 9,593620    | 1519    | 9,544428    | 1685    | 9,500353    | 1054    | 22 |
| 9                                         | 9,592101    | 1532    | 9,542743    | 1679    | 9,499299    | 1014    | 21 |
| 10                                        | 9,590569    | 1543    | 9,541064    | 1674    | 9,498285    | 972     | 20 |
| 11                                        | 9,589026    | 1554    | 9,539390    | 1667    | 9,497313    | 930     | 19 |
| 12                                        | 9,587472    | 1566    | 9,537723    | 1660    | 9,496383    | 887     | 18 |
| 13                                        | 9,585906    | 1577    | 9,536063    | 1651    | 9,495496    | 842     | 17 |
| 14                                        | 9,584329    | 1586    | 9,534412    | 1642    | 9,494654    | 797     | 16 |
| 15                                        | 9,582743    | 1597    | 9,532770    | 1631    | 9,493857    | 750     | 15 |
| 16                                        | 9,581146    | 1607    | 9,531139    | 1618    | 9,493107    | 703     | 14 |
| 17                                        | 9,579539    | 1616    | 9,529521    | 1606    | 9,492404    | 655     | 13 |
| 18                                        | 9,577923    | 1625    | 9,527915    | 1592    | 9,491749    | 605     | 12 |
| 19                                        | 9,576298    | 1634    | 9,526323    | 1577    | 9,491144    | 555     | 11 |
| 20                                        | 9,574664    | 1642    | 9,524746    | 1560    | 9,490589    | 504     | 10 |
| 21                                        | 9,573022    | 1649    | 9,523186    | 1542    | 9,490085    | 453     | 9  |
| 22                                        | 9,571373    | 1656    | 9,521644    | 1524    | 9,489632    | 402     | 8  |
| 23                                        | 9,569717    | 1663    | 9,520120    | 1505    | 9,489230    | 350     | 7  |
| 24                                        | 9,568054    | 1668    | 9,518615    | 1484    | 9,488880    | 296     | 6  |
| 25                                        | 9,566386    | 1674    | 9,517131    | 1461    | 9,488584    | 243     | 5  |
| 26                                        | 9,564712    | 1679    | 9,515670    | 1437    | 9,488341    | 189     | 4  |
| 27                                        | 9,563033    | 1684    | 9,514233    | 1412    | 9,488152    | 135     | 3  |
| 28                                        | 9,561349    | 1687    | 9,512821    | 1386    | 9,488017    | 82      | 2  |
| 29                                        | 9,559662    | 1690    | 9,511435    | 1358    | 9,487935    | 28      | 1  |
| 30                                        | 9,557972    |         | 9,510077    |         | 9,487907    |         | 0  |
|                                           | Sig. VIII.  |         | Sig. VII.   |         | Sig. VI.    |         |    |



## TABLES OF MERCURY.

TABLE VII. Reduction to the Ecliptic both in Longitude and Distance.

| ARGUMENT. <i>The Longitude of Mercury minus the Longitude of the Node.</i> |            |    |                      |            |    |                      |             |    |                   |
|----------------------------------------------------------------------------|------------|----|----------------------|------------|----|----------------------|-------------|----|-------------------|
| Degrees.                                                                   | Sig. O.—   |    | Sub.<br>from<br>Log. | Sig. I.—   |    | Sub.<br>from<br>Log. | Sig. II.—   |    | Degrees.          |
|                                                                            | Sig. VI.—  |    |                      | Sig. VII.— |    |                      | Sig. VIII.— |    |                   |
|                                                                            | M.         | S. |                      | M.         | S. |                      | M.          | S. |                   |
| 0                                                                          | 0.         | 0  | 0                    | 11.        | 7  | 808                  | 11.         | 9  | 30                |
| 1                                                                          | 0.         | 26 | 1                    | 11.        | 20 | 858                  | 10.         | 56 | 29                |
| 2                                                                          | 0.         | 53 | 4                    | 11.        | 32 | 908                  | 10.         | 41 | 28                |
| 3                                                                          | 1.         | 20 | 9                    | 11.        | 43 | 959                  | 10.         | 26 | 27                |
| 4                                                                          | 1.         | 47 | 16                   | 11.        | 54 | 1011                 | 10.         | 9  | 26                |
| 5                                                                          | 2.         | 13 | 24                   | 12.        | 4  | 1063                 | 9.          | 53 | 25                |
| 6                                                                          | 2.         | 39 | 35                   | 12.        | 13 | 1118                 | 9.          | 34 | 24                |
| 7                                                                          | 3.         | 5  | 48                   | 12.        | 21 | 1172                 | 9.          | 16 | 23                |
| 8                                                                          | 3.         | 31 | 62                   | 12.        | 28 | 1226                 | 8.          | 57 | 22                |
| 9                                                                          | 3.         | 57 | 79                   | 12.        | 34 | 1281                 | 8.          | 37 | 21                |
| 10                                                                         | 4.         | 23 | 98                   | 12.        | 40 | 1337                 | 8.          | 17 | 20                |
| 11                                                                         | 4.         | 48 | 118                  | 12.        | 45 | 1392                 | 7.          | 56 | 19                |
| 12                                                                         | 5.         | 13 | 140                  | 12.        | 48 | 1448                 | 7.          | 34 | 18                |
| 13                                                                         | 5.         | 37 | 164                  | 12.        | 50 | 1506                 | 7.          | 12 | 17                |
| 14                                                                         | 6.         | 1  | 189                  | 12.        | 51 | 1562                 | 6.          | 50 | 16                |
| 15                                                                         | 6.         | 25 | 216                  | 12.        | 52 | 1619                 | 6.          | 27 | 15                |
| 16                                                                         | 6.         | 48 | 246                  | 12.        | 51 | 1675                 | 6.          | 3  | 14                |
| 17                                                                         | 7.         | 11 | 277                  | 12.        | 50 | 1731                 | 5.          | 39 | 13                |
| 18                                                                         | 7.         | 33 | 309                  | 12.        | 48 | 1788                 | 5.          | 15 | 12                |
| 19                                                                         | 7.         | 54 | 343                  | 12.        | 45 | 1845                 | 4.          | 50 | 11                |
| 20                                                                         | 8.         | 14 | 378                  | 12.        | 40 | 1901                 | 4.          | 25 | 10                |
| 21                                                                         | 8.         | 34 | 415                  | 12.        | 35 | 1957                 | 3.          | 59 | 9                 |
| 22                                                                         | 8.         | 53 | 454                  | 12.        | 29 | 2012                 | 3.          | 34 | 8                 |
| 23                                                                         | 9.         | 12 | 493                  | 12.        | 22 | 2066                 | 3.          | 8  | 7                 |
| 24                                                                         | 9.         | 31 | 534                  | 12.        | 15 | 2120                 | 2.          | 41 | 6                 |
| 25                                                                         | 9.         | 50 | 577                  | 12.        | 6  | 2173                 | 2.          | 15 | 5                 |
| 26                                                                         | 10.        | 7  | 622                  | 11.        | 56 | 2227                 | 1.          | 47 | 4                 |
| 27                                                                         | 10.        | 23 | 667                  | 11.        | 45 | 2280                 | 1.          | 21 | 3                 |
| 28                                                                         | 10.        | 39 | 713                  | 11.        | 35 | 2332                 | 0.          | 54 | 2                 |
| 29                                                                         | 10.        | 54 | 760                  | 11.        | 22 | 2382                 | 0.          | 27 | 1                 |
| 30                                                                         | 11.        | 7  | 808                  | 11.        | 9  | 2432                 | 0.          | 0  | 0                 |
|                                                                            | Sig. XI. + |    | Sub. from<br>Log.    | Sig. X. +  |    | Sub. from<br>Log.    | Sig. IX. +  |    | Sub. from<br>Log. |
|                                                                            | Sig. V. +  |    |                      | Sig. IV. + |    |                      | Sig. III. + |    |                   |



TABLE VIII. Heliocentric Latitude of Mercury.

ARGUMENT. *The Longitude of Mercury minus the Longitude of the Node.*

| Degrees. | Sig. O. N.  | Differ. | Sig. I. N.   | Differ. | Sig. II. N.   | Differ. | Degrees. |
|----------|-------------|---------|--------------|---------|---------------|---------|----------|
|          | Sig. VI. S. |         | Sig. VII. S. |         | Sig. VIII. S. |         |          |
|          | D. M. S.    |         | D. M. S.     |         | D. M. S.      |         |          |
| 0        | 0. 0. 0     | 7. 18   | 3. 29. 37    | 6. 20   | 6. 3. 30      | 3. 37   | 30       |
| 1        | 0. 7. 18    | 7. 19   | 3. 35. 57    | 6. 15   | 6. 7. 7       | 3. 30   | 29       |
| 2        | 0. 14. 37   | 7. 18   | 3. 42. 12    | 6. 11   | 6. 10. 37     | 3. 23   | 28       |
| 3        | 0. 21. 55   | 7. 18   | 3. 48. 23    | 6. 6    | 6. 14. 0      | 3. 18   | 27       |
| 4        | 0. 29. 13   | 7. 18   | 3. 54. 29    | 6. 1    | 6. 17. 18     | 3. 11   | 26       |
| 5        | 0. 36. 31   | 7. 17   | 4. 0. 30     | 5. 58   | 6. 20. 29     | 3. 3    | 25       |
| 6        | 0. 43. 48   | 7. 16   | 4. 6. 28     | 5. 54   | 6. 23. 32     | 2. 56   | 24       |
| 7        | 0. 51. 4    | 7. 15   | 4. 12. 22    | 5. 49   | 6. 26. 28     | 2. 49   | 23       |
| 8        | 0. 58. 19   | 7. 14   | 4. 18. 11    | 5. 44   | 6. 29. 17     | 2. 42   | 22       |
| 9        | 1. 5. 33    | 7. 12   | 4. 23. 55    | 5. 40   | 6. 31. 59     | 2. 35   | 21       |
| 10       | 1. 12. 45   | 7. 11   | 4. 29. 35    | 5. 35   | 6. 34. 34     | 2. 27   | 20       |
| 11       | 1. 19. 56   | 7. 10   | 4. 35. 10    | 5. 30   | 6. 37. 1      | 2. 20   | 19       |
| 12       | 1. 27. 6    | 7. 9    | 4. 40. 40    | 5. 24   | 6. 39. 21     | 2. 13   | 18       |
| 13       | 1. 34. 15   | 7. 7    | 4. 46. 4     | 5. 19   | 6. 41. 34     | 2. 5    | 17       |
| 14       | 1. 41. 22   | 7. 5    | 4. 51. 23    | 5. 14   | 6. 43. 39     | 1. 58   | 16       |
| 15       | 1. 48. 27   | 7. 4    | 4. 56. 37    | 5. 8    | 6. 45. 37     | 1. 50   | 15       |
| 16       | 1. 55. 31   | 7. 2    | 5. 1. 45     | 5. 3    | 6. 47. 27     | 1. 44   | 14       |
| 17       | 2. 2. 33    | 6. 59   | 5. 6. 48     | 4. 58   | 6. 49. 11     | 1. 36   | 13       |
| 18       | 2. 9. 32    | 6. 55   | 5. 11. 46    | 4. 52   | 6. 50. 47     | 1. 28   | 12       |
| 19       | 2. 16. 27   | 6. 53   | 5. 16. 38    | 4. 46   | 6. 52. 15     | 1. 20   | 11       |
| 20       | 2. 23. 20   | 6. 50   | 5. 21. 24    | 4. 40   | 6. 53. 35     | 1. 12   | 10       |
| 21       | 2. 30. 10   | 6. 48   | 5. 26. 4     | 4. 34   | 6. 54. 47     | 1. 5    | 9        |
| 22       | 2. 36. 58   | 6. 46   | 5. 30. 38    | 4. 28   | 6. 55. 52     | 0. 57   | 8        |
| 23       | 2. 43. 44   | 6. 42   | 5. 35. 6     | 4. 22   | 6. 56. 49     | 0. 50   | 7        |
| 24       | 2. 50. 26   | 6. 40   | 5. 39. 28    | 4. 17   | 6. 57. 39     | 0. 44   | 6        |
| 25       | 2. 57. 6    | 6. 37   | 5. 43. 45    | 4. 11   | 6. 58. 23     | 0. 36   | 5        |
| 26       | 3. 3. 43    | 6. 33   | 5. 47. 56    | 4. 4    | 6. 58. 59     | 0. 27   | 4        |
| 27       | 3. 10. 16   | 6. 30   | 5. 52. 0     | 3. 57   | 6. 59. 26     | 0. 19   | 3        |
| 28       | 3. 16. 46   | 6. 27   | 5. 55. 57    | 3. 50   | 6. 59. 45     | 0. 11   | 2        |
| 29       | 3. 23. 13   | 6. 24   | 5. 59. 47    | 3. 43   | 6. 59. 56     | 0. 4    | 1        |
| 30       | 3. 29. 37   |         | 6. 3. 30     |         | 7. 0. 0       |         | 0        |
|          | Sig. XI. S. |         | Sig. X. S.   |         | Sig. IX. S.   |         |          |
|          | Sig. V. N.  |         | Sig. IV. N.  |         | Sig. III. N.  |         |          |



TABLE I. *Epochs of the Mean Longitude of Venus.*

|            |      | Mean Long. |     |     |     | Aphelion. |     |     |    | Node. |     |     |    |
|------------|------|------------|-----|-----|-----|-----------|-----|-----|----|-------|-----|-----|----|
| YEARS.     |      | S.         | D.  | M.  | S.  | S.        | D.  | M.  | S. | S.    | D.  | M.  | S. |
| Nat. J. C. | 0    | 5.         | 28. | 29. | 10  | 9.        | 14. | 8.  | 12 | 1.    | 29. | 22. | 9  |
|            | 100  | 0.         | 17. | 42. | 10  | 9.        | 15. | 39. | 12 | 2.    | 0.  | 13. | 49 |
|            | 1400 | 2.         | 27. | 31. | 10  | 10.       | 3.  | 12. | 12 | 2.    | 11. | 25. | 29 |
|            | 1500 | 9.         | 16. | 44. | 10  | 10.       | 4.  | 33. | 12 | 2.    | 12. | 17. | 9  |
| B. N. S.   | 1600 | 3.         | 19. | 55. | 52  | 10.       | 5.  | 54. | 12 | 2.    | 13. | 8.  | 48 |
|            | 1700 | 10.        | 7.  | 32. | 45  | 10.       | 7.  | 15. | 12 | 2.    | 14. | 0.  | 28 |
|            | 1740 | 10.        | 15. | 13. | 58  | 10.       | 7.  | 46. | 36 | 2.    | 14. | 21. | 8  |
|            | 1760 | 4.         | 19. | 4.  | 34  | 10.       | 8.  | 3.  | 48 | 2.    | 14. | 31. | 28 |
|            | 1780 | 10.        | 22. | 55. | 10  | 10.       | 8.  | 20. | 0  | 2.    | 14. | 41. | 48 |
| B.         | 1786 | 7.         | 23. | 16. | 16  | 10.       | 8.  | 23. | 52 | 2.    | 14. | 44. | 54 |
|            | 1787 | 3.         | 8.  | 3.  | 46  | 10.       | 8.  | 25. | 40 | 2.    | 14. | 45. | 25 |
|            | 1788 | 10.        | 24. | 27. | 24  | 10.       | 8.  | 26. | 29 | 2.    | 14. | 45. | 56 |
|            | 1789 | 6.         | 9.  | 14. | 54  | 10.       | 8.  | 27. | 17 | 2.    | 14. | 46. | 27 |
|            | 1790 | 1.         | 24. | 2.  | 24  | 10.       | 8.  | 28. | 6  | 2.    | 14. | 46. | 58 |
| B.         | 1791 | 9.         | 8.  | 49. | 54  | 10.       | 8.  | 28. | 55 | 2.    | 14. | 47. | 29 |
|            | 1792 | 4.         | 25. | 13. | 31  | 10.       | 8.  | 29. | 43 | 2.    | 14. | 48. | 0  |
|            | 1793 | 0.         | 10. | 1.  | 1   | 10.       | 8.  | 30. | 32 | 2.    | 14. | 48. | 31 |
|            | 1794 | 7.         | 24. | 48. | 31  | 10.       | 8.  | 31. | 20 | 2.    | 14. | 49. | 2  |
|            | 1795 | 3.         | 9.  | 36. | 1   | 10.       | 8.  | 32. | 9  | 2.    | 14. | 49. | 33 |
| B.         | 1796 | 10.        | 25. | 59. | 38  | 10.       | 8.  | 32. | 58 | 2.    | 14. | 50. | 4  |
|            | 1797 | 6.         | 10. | 47. | 8   | 10.       | 8.  | 33. | 46 | 2.    | 14. | 50. | 35 |
|            | 1798 | 1.         | 25. | 34. | 38  | 10.       | 8.  | 34. | 35 | 2.    | 14. | 51. | 6  |
|            | 1799 | 9.         | 10. | 22. | 8   | 10.       | 8.  | 35. | 23 | 2.    | 14. | 51. | 37 |
|            | 1800 | 4.         | 25. | 9.  | 38  | 10.       | 8.  | 36. | 12 | 2.    | 14. | 52. | 8  |
| B.         | 1801 | 0.         | 9.  | 57. | 8   | 10.       | 8.  | 37. | 1  | 2.    | 14. | 52. | 39 |
|            | 1802 | 7.         | 24. | 44. | 38  | 10.       | 8.  | 37. | 49 | 2.    | 14. | 53. | 10 |
|            | 1803 | 3.         | 9.  | 32. | 7   | 10.       | 8.  | 38. | 38 | 2.    | 14. | 53. | 41 |
|            | 1804 | 10.        | 25. | 55. | 45  | 10.       | 8.  | 39. | 26 | 2.    | 14. | 54. | 12 |
|            | 1805 | 6.         | 10. | 43. | 15  | 10.       | 8.  | 40. | 15 | 2.    | 14. | 54. | 43 |
| B.         | 1806 | 1.         | 25. | 30. | 45  | 10.       | 8.  | 41. | 3  | 2.    | 14. | 55. | 14 |
|            | 1807 | 9.         | 10. | 18. | 15  | 10.       | 8.  | 41. | 52 | 2.    | 14. | 55. | 45 |
|            | 1808 | 4.         | 26. | 41. | 52  | 10.       | 8.  | 42. | 40 | 2.    | 14. | 56. | 16 |
|            | 1809 | 0.         | 11. | 29. | 22  | 10.       | 8.  | 43. | 29 | 2.    | 14. | 56. | 47 |
|            | 1810 | 7.         | 26. | 16. | 52  | 10.       | 8.  | 44. | 18 | 2.    | 14. | 57. | 18 |
| B.         | 1811 | 3.         | 11. | 4.  | 22  | 10.       | 8.  | 45. | 6  | 2.    | 14. | 57. | 49 |
|            | 1812 | 10.        | 27. | 27. | 59  | 10.       | 8.  | 45. | 55 | 2.    | 14. | 58. | 20 |
|            | 1813 | 6.         | 12. | 15. | 29  | 10.       | 8.  | 46. | 43 | 2.    | 14. | 58. | 51 |
|            | 1814 | 1.         | 27. | 2.  | 59  | 10.       | 8.  | 47. | 32 | 2.    | 14. | 59. | 22 |
|            | 1815 | 9.         | 11. | 50. | 29  | 10.       | 8.  | 48. | 21 | 2.    | 14. | 59. | 53 |
| B.         | 1816 | 4.         | 28. | 14. | 7   | 10.       | 8.  | 49. | 9  | 2.    | 15. | 0.  | 24 |
|            | 1817 | 0.         | 13. | 1.  | 36  | 10.       | 8.  | 49. | 58 | 2.    | 15. | 0.  | 55 |
|            | 1818 | 7.         | 27. | 49. | 6   | 10.       | 8.  | 50. | 46 | 2.    | 15. | 1.  | 26 |
|            | 1819 | 3.         | 12. | 36. | 36  | 10.       | 8.  | 51. | 35 | 2.    | 15. | 1.  | 57 |
|            | 1820 | 10.        | 29  | 0.  | 14. | 10.       | 8.  | 52. | 24 | 2.    | 15. | 2.  | 28 |



TABLE II. Mean Motion of Venus for *Years*.

| YEARS. | Mot. in Long. |     |     |    | Mot. Aphelion |     |    | Mot. Node. |     |    |
|--------|---------------|-----|-----|----|---------------|-----|----|------------|-----|----|
|        | S.            | D.  | M.  | S. | D.            | M.  | S. | D.         | M.  | S. |
| 1      | 7.            | 14. | 47. | 30 | 0.            | 0.  | 49 | 0.         | 0.  | 31 |
| 2      | 2.            | 29. | 35. | 0  | 0.            | 1.  | 37 | 0.         | 1.  | 2  |
| 3      | 10.           | 14. | 22. | 30 | 0.            | 2.  | 26 | 0.         | 1.  | 33 |
| B. 4   | 6.            | 0.  | 46. | 7  | 0.            | 3.  | 14 | 0.         | 2.  | 4  |
| 5      | 1.            | 15. | 33. | 37 | 0.            | 4.  | 3  | 0.         | 2.  | 35 |
| 6      | 9.            | 0.  | 21. | 7  | 0.            | 4.  | 52 | 0.         | 3.  | 6  |
| B. 7   | 4.            | 15. | 8.  | 37 | 0.            | 5.  | 40 | 0.         | 3.  | 37 |
| 8      | 0.            | 1.  | 32. | 14 | 0.            | 6.  | 29 | 0.         | 4.  | 8  |
| 9      | 7.            | 16. | 19. | 44 | 0.            | 7.  | 17 | 0.         | 4.  | 39 |
| 10     | 3.            | 1.  | 7.  | 14 | 0.            | 8.  | 6  | 0.         | 5.  | 10 |
| B. 11  | 10.           | 15. | 54. | 44 | 0.            | 8.  | 55 | 0.         | 5.  | 41 |
| 12     | 6.            | 2.  | 18. | 22 | 0.            | 9.  | 43 | 0.         | 6.  | 12 |
| 13     | 1.            | 17. | 5.  | 51 | 0.            | 10. | 32 | 0.         | 6.  | 43 |
| 14     | 9.            | 1.  | 53. | 21 | 0.            | 11. | 20 | 0.         | 7.  | 14 |
| 15     | 4.            | 16. | 40. | 51 | 0.            | 12. | 9  | 0.         | 7.  | 45 |
| B. 16  | 0.            | 3.  | 4.  | 29 | 0.            | 12. | 58 | 0.         | 8.  | 16 |
| 17     | 7.            | 17. | 51. | 59 | 0.            | 13. | 46 | 0.         | 8.  | 47 |
| 18     | 3.            | 2.  | 39. | 28 | 0.            | 14. | 35 | 0.         | 9.  | 18 |
| B. 19  | 10.           | 17. | 26. | 58 | 0.            | 15. | 23 | 0.         | 9.  | 49 |
| 20     | 6.            | 3.  | 50. | 36 | 0.            | 16. | 12 | 0.         | 10. | 20 |
| 40     | 0.            | 7.  | 41. | 12 | 0.            | 32. | 24 | 0.         | 20. | 40 |
| 60     | 6.            | 11. | 31. | 48 | 0.            | 48. | 36 | 0.         | 31. | 0  |
| 80     | 0.            | 15. | 22. | 24 | 1.            | 4.  | 48 | 0.         | 41. | 20 |
| 100    | 6.            | 19. | 13. | 0  | 1.            | 21. | 0  | 0.         | 51. | 40 |
| 200    | 1.            | 8.  | 26. | 0  | 2.            | 42. | 0  | 1.         | 43. | 20 |
| 300    | 7.            | 27. | 39. | 0  | 4.            | 3.  | 0  | 2.         | 35. | 0  |
| 400    | 2.            | 16. | 52. | 0  | 5.            | 24. | 0  | 3.         | 26. | 40 |
| 500    | 9.            | 6.  | 5.  | 0  | 6.            | 45. | 0  | 4.         | 18. | 20 |
| 600    | 3.            | 25. | 18. | 0  | 8.            | 6.  | 0  | 5.         | 10. | 0  |
| 700    | 10.           | 14. | 31. | 0  | 9.            | 27. | 0  | 6.         | 1.  | 40 |
| 800    | 5.            | 3.  | 44. | 0  | 10.           | 48. | 0  | 6.         | 53. | 20 |
| 900    | 11.           | 22. | 57. | 0  | 12.           | 9.  | 0  | 7.         | 45. | 0  |
| 1000   | 6.            | 12. | 10. | 0  | 13.           | 30. | 0  | 8.         | 36. | 40 |
| 1100   | 1.            | 1.  | 23. | 0  | 14.           | 51. | 0  | 9.         | 28. | 20 |
| 1200   | 7.            | 20. | 36. | 0  | 16.           | 12. | 0  | 10.        | 20. | 0  |
| 1300   | 2.            | 9.  | 49. | 0  | 17.           | 33. | 0  | 11.        | 11. | 40 |
| 1400   | 8.            | 29. | 2.  | 0  | 18.           | 54. | 0  | 12.        | 3.  | 20 |
| 1500   | 3.            | 18. | 15. | 0  | 20.           | 15. | 0  | 12.        | 55. | 0  |
| 2000   | 0.            | 24. | 20. | 0  | 27.           | 0.  | 0  | 17.        | 13. | 20 |

Bifexiles.



TABLE III. Mean Motion of Venus for *Days*.

| Days of Month. | JANUARY.   |     |     |    | Mot. Aph. | Mot. Node | Days of Month. | FEBRUARY.  |     |     |    | Mot. Aph. | Mot. Node | Days of Month. | MARCH.     |     |     |    | Mot. Aph. | Mot. Node |
|----------------|------------|-----|-----|----|-----------|-----------|----------------|------------|-----|-----|----|-----------|-----------|----------------|------------|-----|-----|----|-----------|-----------|
|                | Mot. Long. |     |     |    |           |           |                | Mot. Long. |     |     |    |           |           |                | Mot. Long. |     |     |    |           |           |
|                | S.         | D.  | M.  | S. |           |           |                | S.         | D.  | M.  | S. |           |           |                | S.         | D.  | M.  | S. |           |           |
| 1              | 0.         | 1.  | 36. | 8  | 0         | 0         | 1              | 1.         | 21. | 16. | 10 | 4         | 3         | 1              | 3.         | 6.  | 7.  | 48 | 8         | 5         |
| 2              | 0.         | 3.  | 12. | 16 | 0         | 0         | 2              | 1.         | 22. | 52. | 18 | 4         | 3         | 2              | 3.         | 7.  | 43. | 56 | 8         | 5         |
| 3              | 0.         | 4.  | 48. | 23 | 1         | 0         | 3              | 1.         | 24. | 28. | 25 | 5         | 3         | 3              | 3.         | 9.  | 20. | 4  | 8         | 5         |
| 4              | 0.         | 6.  | 24. | 31 | 1         | 0         | 4              | 1.         | 26. | 4.  | 33 | 5         | 3         | 4              | 3.         | 10. | 56. | 12 | 8         | 5         |
| 5              | 0.         | 8.  | 0.  | 39 | 1         | 0         | 5              | 1.         | 27. | 40. | 41 | 5         | 3         | 5              | 3.         | 12. | 32. | 20 | 9         | 5         |
| 6              | 0.         | 9.  | 36. | 47 | 1         | 0         | 6              | 1.         | 29. | 16. | 49 | 5         | 3         | 6              | 3.         | 14. | 8.  | 27 | 9         | 6         |
| 7              | 0.         | 11. | 12. | 55 | 1         | 1         | 7              | 2.         | 0.  | 52. | 57 | 5         | 3         | 7              | 3.         | 15. | 44. | 35 | 9         | 6         |
| 8              | 0.         | 12. | 49. | 2  | 1         | 1         | 8              | 2.         | 2.  | 29. | 4  | 5         | 3         | 8              | 3.         | 17. | 20. | 43 | 9         | 6         |
| 9              | 0.         | 14. | 25. | 10 | 1         | 1         | 9              | 2.         | 4.  | 5.  | 12 | 5         | 3         | 9              | 3.         | 18. | 56. | 51 | 9         | 6         |
| 10             | 0.         | 16. | 1.  | 18 | 1         | 1         | 10             | 2.         | 5.  | 41. | 20 | 5         | 3         | 10             | 3.         | 20. | 32. | 59 | 9         | 6         |
| 11             | 0.         | 17. | 37. | 26 | 2         | 1         | 11             | 2.         | 7.  | 17. | 28 | 6         | 4         | 11             | 3.         | 22. | 9.  | 7  | 9         | 6         |
| 12             | 0.         | 19. | 13. | 34 | 2         | 1         | 12             | 2.         | 8.  | 53. | 36 | 6         | 4         | 12             | 3.         | 23. | 45. | 14 | 9         | 6         |
| 13             | 0.         | 20. | 49. | 41 | 2         | 1         | 13             | 2.         | 10. | 29. | 43 | 6         | 4         | 13             | 3.         | 25. | 21. | 22 | 10        | 6         |
| 14             | 0.         | 22. | 25. | 49 | 2         | 1         | 14             | 2.         | 12. | 5.  | 51 | 6         | 4         | 14             | 3.         | 26. | 57. | 30 | 10        | 6         |
| 15             | 0.         | 24. | 1.  | 57 | 2         | 1         | 15             | 2.         | 13. | 41. | 59 | 6         | 4         | 15             | 3.         | 28. | 33. | 38 | 10        | 6         |
| 16             | 0.         | 25. | 38. | 5  | 2         | 1         | 16             | 2.         | 15. | 18. | 7  | 6         | 4         | 16             | 4.         | 0.  | 9.  | 46 | 10        | 6         |
| 17             | 0.         | 27. | 14. | 13 | 2         | 1         | 17             | 2.         | 16. | 54. | 15 | 6         | 4         | 17             | 4.         | 1.  | 45. | 53 | 10        | 6         |
| 18             | 0.         | 28. | 50. | 21 | 3         | 2         | 18             | 2.         | 18. | 30. | 23 | 7         | 4         | 18             | 4.         | 3.  | 22. | 1  | 10        | 7         |
| 19             | 1.         | 0.  | 26. | 28 | 3         | 2         | 19             | 2.         | 20. | 6.  | 30 | 7         | 4         | 19             | 4.         | 4.  | 58. | 9  | 10        | 7         |
| 20             | 1.         | 2.  | 2.  | 36 | 3         | 2         | 20             | 2.         | 21. | 42. | 38 | 7         | 4         | 20             | 4.         | 6.  | 34. | 17 | 11        | 7         |
| 21             | 1.         | 3.  | 38. | 44 | 3         | 2         | 21             | 2.         | 23. | 18. | 46 | 7         | 4         | 21             | 4.         | 8.  | 10. | 25 | 11        | 7         |
| 22             | 1.         | 5.  | 14. | 52 | 3         | 2         | 22             | 2.         | 24. | 54. | 54 | 7         | 4         | 22             | 4.         | 9.  | 46. | 32 | 11        | 7         |
| 23             | 1.         | 6.  | 51. | 0  | 3         | 2         | 23             | 2.         | 26. | 31. | 2  | 7         | 5         | 23             | 4.         | 11. | 22. | 40 | 11        | 7         |
| 24             | 1.         | 8.  | 27. | 7  | 3         | 2         | 24             | 2.         | 28. | 7.  | 9  | 7         | 5         | 24             | 4.         | 12. | 58. | 48 | 11        | 7         |
| 25             | 1.         | 10. | 3.  | 15 | 3         | 2         | 25             | 2.         | 29. | 43. | 17 | 7         | 5         | 25             | 4.         | 14. | 34. | 56 | 11        | 7         |
| 26             | 1.         | 11. | 39. | 23 | 3         | 2         | 26             | 3.         | 1.  | 19. | 25 | 8         | 5         | 26             | 4.         | 16. | 11. | 4  | 11        | 7         |
| 27             | 1.         | 13. | 15. | 31 | 4         | 2         | 27             | 3.         | 2.  | 55. | 33 | 8         | 5         | 27             | 4.         | 17. | 47. | 11 | 11        | 7         |
| 28             | 1.         | 14. | 51. | 39 | 4         | 2         | 28             | 3.         | 4.  | 31. | 41 | 8         | 5         | 28             | 4.         | 19. | 23. | 19 | 12        | 7         |
| 29             | 1.         | 16. | 27. | 46 | 4         | 2         |                |            |     |     |    |           |           | 29             | 4.         | 20. | 59. | 27 | 12        | 7         |
| 30             | 1.         | 18. | 3.  | 54 | 4         | 3         |                |            |     |     |    |           |           | 30             | 4.         | 22. | 35. | 35 | 12        | 8         |
| 31             | 1.         | 19. | 40. | 2  | 4         | 3         |                |            |     |     |    |           |           | 31             | 4.         | 24. | 11. | 43 | 12        | 8         |

In the Months JANUARY and FEBRUARY of a Bissextile Year, subtract 1 from the given Day of the Month.



TABLE III. Mean Motion of Venus for *Days*.

| Days of the Month. | APRIL.     |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | MAY.       |      |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | JUNE.      |     |      |      | Mot. Aphelion. | Mot. Node. |
|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|------|-----|----|----------------|------------|--------------------|------------|-----|------|------|----------------|------------|
|                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |      |     |    |                |            |                    | Mot. Long. |     |      |      |                |            |
|                    | S.         | D.  | M.  | S. |                |            |                    | SEC.       | SEC. | S.  | D. |                |            |                    | M.         | S.  | SEC. | SEC. |                |            |
| 1                  | 4.         | 25. | 47. | 50 | 12             | 8          | 1                  | 6.         | 13.  | 51. | 45 | 16             | 10         | 1                  | 8.         | 3.  | 31.  | 47   | 20             | 13         |
| 2                  | 4.         | 27. | 23. | 58 | 12             | 8          | 2                  | 6.         | 15.  | 27. | 52 | 16             | 10         | 2                  | 8.         | 5.  | 7.   | 54   | 20             | 13         |
| 3                  | 4.         | 29. | 0.  | 6  | 12             | 8          | 3                  | 6.         | 17.  | 4.  | 0  | 16             | 10         | 3                  | 8.         | 6.  | 44.  | 2    | 20             | 13         |
| 4                  | 5.         | 0.  | 36. | 14 | 13             | 8          | 4                  | 6.         | 18.  | 40. | 8  | 16             | 11         | 4                  | 8.         | 8.  | 20.  | 10   | 21             | 13         |
| 5                  | 5.         | 2.  | 12. | 22 | 13             | 8          | 5                  | 6.         | 20.  | 16. | 16 | 17             | 11         | 5                  | 8.         | 9.  | 56.  | 18   | 21             | 13         |
| 6                  | 5.         | 3.  | 48. | 30 | 13             | 8          | 6                  | 6.         | 21.  | 52. | 24 | 17             | 11         | 6                  | 8.         | 11. | 32.  | 26   | 21             | 13         |
| 7                  | 5.         | 5.  | 24. | 37 | 13             | 8          | 7                  | 6.         | 23.  | 28. | 31 | 17             | 11         | 7                  | 8.         | 13. | 8.   | 33   | 21             | 13         |
| 8                  | 5.         | 7.  | 0.  | 45 | 13             | 8          | 8                  | 6.         | 25.  | 4.  | 39 | 17             | 11         | 8                  | 8.         | 14. | 44.  | 41   | 21             | 13         |
| 9                  | 5.         | 8.  | 36. | 53 | 13             | 8          | 9                  | 6.         | 26.  | 40. | 47 | 17             | 11         | 9                  | 8.         | 16. | 20.  | 49   | 21             | 14         |
| 10                 | 5.         | 10. | 13. | 1  | 13             | 8          | 10                 | 6.         | 28.  | 16. | 55 | 17             | 11         | 10                 | 8.         | 17. | 56.  | 57   | 21             | 14         |
| 11                 | 5.         | 11. | 49. | 9  | 13             | 9          | 11                 | 6.         | 29.  | 53. | 3  | 17             | 11         | 11                 | 8.         | 19. | 33.  | 5    | 22             | 14         |
| 12                 | 5.         | 13. | 25. | 16 | 14             | 9          | 12                 | 7.         | 1.   | 29. | 10 | 18             | 11         | 12                 | 8.         | 21. | 9.   | 12   | 22             | 14         |
| 13                 | 5.         | 15. | 1.  | 24 | 14             | 9          | 13                 | 7.         | 3.   | 5.  | 18 | 18             | 11         | 13                 | 8.         | 22. | 45.  | 20   | 22             | 14         |
| 14                 | 5.         | 16. | 37. | 32 | 14             | 9          | 14                 | 7.         | 4.   | 41. | 26 | 18             | 11         | 14                 | 8.         | 24. | 21.  | 28   | 22             | 14         |
| 15                 | 5.         | 18. | 13. | 40 | 14             | 9          | 15                 | 7.         | 6.   | 17. | 34 | 18             | 11         | 15                 | 8.         | 25. | 57.  | 36   | 22             | 14         |
| 16                 | 5.         | 19. | 49. | 48 | 14             | 9          | 16                 | 7.         | 7.   | 53. | 42 | 18             | 12         | 16                 | 8.         | 27. | 33.  | 44   | 22             | 14         |
| 17                 | 5.         | 21. | 25. | 55 | 14             | 9          | 17                 | 7.         | 9.   | 29. | 50 | 18             | 12         | 17                 | 8.         | 29. | 9.   | 51   | 22             | 14         |
| 18                 | 5.         | 23. | 2.  | 3  | 14             | 9          | 18                 | 7.         | 11.  | 5.  | 57 | 18             | 12         | 18                 | 9.         | 0.  | 45.  | 59   | 22             | 14         |
| 19                 | 5.         | 24. | 38. | 11 | 14             | 9          | 19                 | 7.         | 12.  | 42. | 5  | 18             | 12         | 19                 | 9.         | 2.  | 22.  | 7    | 23             | 14         |
| 20                 | 5.         | 26. | 14. | 19 | 15             | 9          | 20                 | 7.         | 14.  | 18. | 13 | 19             | 12         | 20                 | 9.         | 3.  | 58.  | 15   | 23             | 15         |
| 21                 | 5.         | 27. | 50. | 27 | 15             | 9          | 21                 | 7.         | 15.  | 54. | 21 | 19             | 12         | 21                 | 9.         | 5.  | 34.  | 23   | 23             | 15         |
| 22                 | 5.         | 29. | 26. | 34 | 15             | 10         | 22                 | 7.         | 17.  | 30. | 29 | 19             | 12         | 22                 | 9.         | 7.  | 10.  | 30   | 23             | 15         |
| 23                 | 6.         | 1.  | 2.  | 42 | 15             | 10         | 23                 | 7.         | 19.  | 6.  | 36 | 19             | 12         | 23                 | 9.         | 8.  | 46.  | 38   | 23             | 15         |
| 24                 | 6.         | 2.  | 38. | 50 | 15             | 10         | 24                 | 7.         | 20.  | 42. | 44 | 19             | 12         | 24                 | 9.         | 10. | 22.  | 46   | 23             | 15         |
| 25                 | 6.         | 4.  | 14. | 58 | 15             | 10         | 25                 | 7.         | 22.  | 18. | 52 | 19             | 12         | 25                 | 9.         | 11. | 58.  | 54   | 23             | 15         |
| 26                 | 6.         | 5.  | 51. | 6  | 15             | 10         | 26                 | 7.         | 23.  | 55. | 0  | 19             | 12         | 26                 | 9.         | 13. | 35.  | 2    | 24             | 15         |
| 27                 | 6.         | 7.  | 27. | 13 | 16             | 10         | 27                 | 7.         | 25.  | 31. | 8  | 20             | 12         | 27                 | 9.         | 15. | 11.  | 10   | 24             | 15         |
| 28                 | 6.         | 9.  | 3.  | 21 | 16             | 10         | 28                 | 7.         | 27.  | 7.  | 15 | 20             | 13         | 28                 | 9.         | 16. | 47.  | 17   | 24             | 15         |
| 29                 | 6.         | 10. | 39. | 29 | 16             | 10         | 29                 | 7.         | 28.  | 43. | 23 | 20             | 13         | 29                 | 9.         | 18. | 23.  | 25   | 24             | 15         |
| 30                 | 6.         | 12. | 15. | 37 | 16             | 10         | 30                 | 8.         | 0.   | 19. | 31 | 20             | 13         | 30                 | 9.         | 19. | 59.  | 33   | 24             | 15         |
|                    |            |     |     |    |                |            | 31                 | 8.         | 1.   | 55. | 39 | 20             | 13         |                    |            |     |      |      |                |            |



## TABLES OF VENUS.

TABLE III. Mean Motion of Venus for *Days*.

| Days of the Month. | JULY.      |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | AUGUST.    |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | SEPTEMBER. |     |     |    | Mot. Aphelion. | Mot. Node. |
|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|-----|-----|----|----------------|------------|
|                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |     |     |    |                |            |
|                    | S.         | D.  | M.  | S. |                |            |                    | S.         | D.  | M.  | S. |                |            |                    | S.         | D.  | M.  | S. |                |            |
| 1                  | 9.         | 21. | 35. | 41 | 24             | 15         | 1                  | 11.        | 11. | 15. | 43 | 28             | 18         | 1                  | 1.         | 0.  | 55. | 45 | 32             | 21         |
| 2                  | 9.         | 23. | 11. | 49 | 24             | 16         | 2                  | 11.        | 12. | 51. | 51 | 28             | 18         | 2                  | 1.         | 2.  | 31. | 53 | 33             | 21         |
| 3                  | 9.         | 24. | 47. | 56 | 24             | 16         | 3                  | 11.        | 14. | 27. | 59 | 29             | 18         | 3                  | 1.         | 4.  | 8.  | 0  | 33             | 21         |
| 4                  | 9.         | 26. | 24. | 4  | 25             | 16         | 4                  | 11.        | 16. | 4.  | 6  | 29             | 18         | 4                  | 1.         | 5.  | 44. | 8  | 33             | 21         |
| 5                  | 9.         | 28. | 0.  | 12 | 25             | 16         | 5                  | 11.        | 17. | 40. | 14 | 29             | 18         | 5                  | 1.         | 7.  | 20. | 16 | 33             | 21         |
| 6                  | 9.         | 29. | 36. | 29 | 25             | 16         | 6                  | 11.        | 19. | 16. | 22 | 29             | 19         | 6                  | 1.         | 8.  | 56. | 24 | 33             | 21         |
| 7                  | 10.        | 1.  | 12. | 28 | 25             | 16         | 7                  | 11.        | 20. | 52. | 30 | 29             | 19         | 7                  | 1.         | 10. | 32. | 32 | 33             | 21         |
| 8                  | 10.        | 2.  | 48. | 35 | 25             | 16         | 8                  | 11.        | 22. | 28. | 38 | 29             | 19         | 8                  | 1.         | 12. | 8.  | 40 | 33             | 21         |
| 9                  | 10.        | 4.  | 24. | 43 | 25             | 16         | 9                  | 11.        | 24. | 4.  | 45 | 29             | 19         | 9                  | 1.         | 13. | 44. | 47 | 34             | 21         |
| 10                 | 10.        | 6.  | 0.  | 51 | 25             | 16         | 10                 | 11.        | 25. | 40. | 53 | 30             | 19         | 10                 | 1.         | 15. | 20. | 55 | 34             | 21         |
| 11                 | 10.        | 7.  | 36. | 59 | 26             | 16         | 11                 | 11.        | 27. | 17. | 1  | 30             | 19         | 11                 | 1.         | 16. | 57. | 3  | 34             | 22         |
| 12                 | 10.        | 9.  | 13. | 7  | 26             | 16         | 12                 | 11.        | 28. | 53. | 9  | 30             | 19         | 12                 | 1.         | 18. | 33. | 11 | 34             | 22         |
| 13                 | 10.        | 10. | 49. | 14 | 26             | 16         | 13                 | 0.         | 0.  | 29. | 17 | 30             | 19         | 13                 | 1.         | 20. | 9.  | 19 | 34             | 22         |
| 14                 | 10.        | 12. | 25. | 22 | 26             | 17         | 14                 | 0.         | 2.  | 5.  | 24 | 30             | 19         | 14                 | 1.         | 21. | 45. | 26 | 34             | 22         |
| 15                 | 10.        | 14. | 1.  | 30 | 26             | 17         | 15                 | 0.         | 3.  | 41. | 32 | 30             | 19         | 15                 | 1.         | 23. | 21. | 34 | 34             | 22         |
| 16                 | 10.        | 15. | 37. | 38 | 26             | 17         | 16                 | 0.         | 5.  | 17. | 40 | 30             | 19         | 16                 | 1.         | 24. | 57. | 42 | 34             | 22         |
| 17                 | 10.        | 17. | 13. | 46 | 26             | 17         | 17                 | 0.         | 6.  | 53. | 48 | 30             | 19         | 17                 | 1.         | 26. | 33. | 50 | 35             | 22         |
| 18                 | 10.        | 18. | 49. | 53 | 26             | 17         | 18                 | 0.         | 8.  | 29. | 56 | 31             | 20         | 18                 | 1.         | 28. | 9.  | 58 | 35             | 22         |
| 19                 | 10.        | 20. | 26. | 1  | 27             | 17         | 19                 | 0.         | 10. | 6.  | 3  | 31             | 20         | 19                 | 1.         | 29. | 46. | 5  | 35             | 22         |
| 20                 | 10.        | 22. | 2.  | 9  | 27             | 17         | 20                 | 0.         | 11. | 42. | 11 | 31             | 20         | 20                 | 2.         | 1.  | 22. | 13 | 35             | 22         |
| 21                 | 10.        | 23. | 38. | 17 | 27             | 17         | 21                 | 0.         | 13. | 18. | 19 | 31             | 20         | 21                 | 2.         | 2.  | 58. | 21 | 35             | 22         |
| 22                 | 10.        | 25. | 14. | 25 | 27             | 17         | 22                 | 0.         | 14. | 54. | 27 | 31             | 20         | 22                 | 2.         | 4.  | 34. | 29 | 35             | 22         |
| 23                 | 10.        | 26. | 50. | 33 | 27             | 17         | 23                 | 0.         | 16. | 30. | 35 | 31             | 20         | 23                 | 2.         | 6.  | 10. | 37 | 35             | 23         |
| 24                 | 10.        | 28. | 26. | 40 | 27             | 17         | 24                 | 0.         | 18. | 6.  | 42 | 31             | 20         | 24                 | 2.         | 7.  | 46. | 44 | 36             | 23         |
| 25                 | 11.        | 0.  | 2.  | 48 | 27             | 17         | 25                 | 0.         | 19. | 42. | 50 | 32             | 20         | 25                 | 2.         | 9.  | 22. | 52 | 36             | 23         |
| 26                 | 11.        | 1.  | 38. | 56 | 28             | 18         | 26                 | 0.         | 21. | 18. | 58 | 32             | 20         | 26                 | 2.         | 10. | 59. | 0  | 36             | 23         |
| 27                 | 11.        | 3.  | 15. | 4  | 28             | 18         | 27                 | 0.         | 22. | 55. | 6  | 32             | 20         | 27                 | 2.         | 12. | 35. | 8  | 36             | 23         |
| 28                 | 11.        | 4.  | 51. | 12 | 28             | 18         | 28                 | 0.         | 24. | 31. | 14 | 32             | 20         | 28                 | 2.         | 14. | 11. | 16 | 36             | 23         |
| 29                 | 11.        | 6.  | 27. | 19 | 28             | 18         | 29                 | 0.         | 26. | 7.  | 21 | 32             | 20         | 29                 | 2.         | 15. | 47. | 23 | 36             | 23         |
| 30                 | 11.        | 8.  | 3.  | 27 | 28             | 18         | 30                 | 0.         | 27. | 43. | 29 | 32             | 21         | 30                 | 2.         | 17. | 23. | 31 | 36             | 23         |
| 31                 | 11.        | 9.  | 39. | 35 | 28             | 18         | 31                 | 0.         | 29. | 19. | 37 | 32             | 21         |                    |            |     |     |    |                |            |



TABLE III. Mean Motion of Venus for *Days*.

| Days of the Month. | OCTOBER.   |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | NOVEMBER.  |     |     |    | Mot. Aphelion. | Mot. Node. | Days of the Month. | DECEMBER.  |     |     |    | Mot. Aphelion. | Mot. Node. |
|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|-----|-----|----|----------------|------------|--------------------|------------|-----|-----|----|----------------|------------|
|                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |     |     |    |                |            |                    | Mot. Long. |     |     |    |                |            |
|                    | S.         | D.  | M.  | S. |                |            |                    | S.         | D.  | M.  | S. |                |            |                    | S.         | D.  | M.  | S. |                |            |
| 1                  | 2.         | 18. | 58. | 39 | 36             | 23         | 1                  | 4.         | 8.  | 39. | 41 | 41             | 26         | 1                  | 5.         | 26. | 43. | 35 | 45             | 28         |
| 2                  | 2.         | 20. | 35. | 47 | 37             | 23         | 2                  | 4.         | 10. | 15. | 49 | 41             | 26         | 2                  | 5.         | 28. | 19. | 43 | 45             | 29         |
| 3                  | 2.         | 22. | 11. | 55 | 37             | 23         | 3                  | 4.         | 11. | 51. | 57 | 41             | 26         | 3                  | 5.         | 29. | 55. | 51 | 45             | 29         |
| 4                  | 2.         | 23. | 48. | 2  | 37             | 24         | 4                  | 4.         | 13. | 28. | 5  | 41             | 26         | 4                  | 6.         | 1.  | 31. | 59 | 45             | 29         |
| 5                  | 2.         | 25. | 24. | 10 | 37             | 24         | 5                  | 4.         | 15. | 4.  | 12 | 41             | 26         | 5                  | 6.         | 3.  | 8.  | 7  | 45             | 29         |
| 6                  | 2.         | 27. | 0.  | 18 | 37             | 24         | 6                  | 4.         | 16. | 40. | 20 | 41             | 26         | 6                  | 6.         | 4.  | 44. | 14 | 45             | 29         |
| 7                  | 2.         | 28. | 36. | 26 | 37             | 24         | 7                  | 4.         | 18. | 16. | 28 | 41             | 26         | 7                  | 6.         | 6.  | 20. | 22 | 45             | 29         |
| 8                  | 3.         | 0.  | 12. | 34 | 37             | 24         | 8                  | 4.         | 19. | 52. | 36 | 41             | 26         | 8                  | 6.         | 7.  | 56. | 30 | 45             | 29         |
| 9                  | 3.         | 1.  | 48. | 41 | 38             | 24         | 9                  | 4.         | 21. | 28. | 44 | 42             | 27         | 9                  | 6.         | 9.  | 32. | 38 | 46             | 29         |
| 10                 | 3.         | 3.  | 24. | 49 | 38             | 24         | 10                 | 4.         | 23. | 4.  | 51 | 42             | 27         | 10                 | 6.         | 11. | 8.  | 46 | 46             | 29         |
| 11                 | 3.         | 5.  | 0.  | 57 | 38             | 24         | 11                 | 4.         | 24. | 40. | 59 | 42             | 27         | 11                 | 6.         | 12. | 44. | 53 | 46             | 29         |
| 12                 | 3.         | 6.  | 37. | 5  | 38             | 24         | 12                 | 4.         | 26. | 17. | 7  | 42             | 27         | 12                 | 6.         | 14. | 21. | 1  | 46             | 29         |
| 13                 | 3.         | 8.  | 13. | 13 | 38             | 24         | 13                 | 4.         | 27. | 53. | 15 | 42             | 27         | 13                 | 6.         | 15. | 57. | 9  | 46             | 29         |
| 14                 | 3.         | 9.  | 49. | 21 | 38             | 24         | 14                 | 4.         | 29. | 29. | 22 | 42             | 27         | 14                 | 6.         | 17. | 33. | 17 | 46             | 30         |
| 15                 | 3.         | 11. | 25. | 28 | 38             | 24         | 15                 | 5.         | 1.  | 5.  | 30 | 42             | 27         | 15                 | 6.         | 19. | 9.  | 25 | 46             | 30         |
| 16                 | 3.         | 13. | 1.  | 36 | 38             | 25         | 16                 | 5.         | 2.  | 41. | 38 | 43             | 27         | 16                 | 6.         | 20. | 45. | 32 | 47             | 30         |
| 17                 | 3.         | 14. | 37. | 44 | 39             | 25         | 17                 | 5.         | 4.  | 17. | 46 | 43             | 27         | 17                 | 6.         | 22. | 21. | 40 | 47             | 30         |
| 18                 | 3.         | 16. | 13. | 52 | 39             | 25         | 18                 | 5.         | 5.  | 53. | 54 | 43             | 27         | 18                 | 6.         | 23. | 57. | 48 | 47             | 30         |
| 19                 | 3.         | 17. | 50. | 0  | 39             | 25         | 19                 | 5.         | 7.  | 30. | 2  | 43             | 27         | 19                 | 6.         | 25. | 33. | 56 | 47             | 30         |
| 20                 | 3.         | 19. | 26. | 7  | 39             | 25         | 20                 | 5.         | 9.  | 6.  | 10 | 43             | 28         | 20                 | 6.         | 27. | 10. | 4  | 47             | 30         |
| 21                 | 3.         | 21. | 2.  | 15 | 39             | 25         | 21                 | 5.         | 10. | 42. | 17 | 43             | 28         | 21                 | 6.         | 28. | 46. | 12 | 47             | 30         |
| 22                 | 3.         | 22. | 38. | 23 | 39             | 25         | 22                 | 5.         | 12. | 18. | 25 | 43             | 28         | 22                 | 7.         | 0.  | 22. | 19 | 47             | 30         |
| 23                 | 3.         | 24. | 14. | 31 | 39             | 25         | 23                 | 5.         | 13. | 54. | 33 | 43             | 28         | 23                 | 7.         | 1.  | 58. | 27 | 47             | 30         |
| 24                 | 3.         | 25. | 50. | 39 | 40             | 25         | 24                 | 5.         | 15. | 30. | 41 | 44             | 28         | 24                 | 7.         | 3.  | 34. | 35 | 47             | 30         |
| 25                 | 3.         | 27. | 26. | 47 | 40             | 25         | 25                 | 5.         | 17. | 6.  | 49 | 44             | 28         | 25                 | 7.         | 5.  | 10. | 43 | 48             | 30         |
| 26                 | 3.         | 29. | 2.  | 54 | 40             | 25         | 26                 | 5.         | 18. | 42. | 56 | 44             | 28         | 26                 | 7.         | 6.  | 46. | 51 | 48             | 31         |
| 27                 | 4.         | 0.  | 39. | 2  | 40             | 25         | 27                 | 5.         | 20. | 19. | 4  | 44             | 28         | 27                 | 7.         | 8.  | 22. | 58 | 48             | 31         |
| 28                 | 4.         | 2.  | 15. | 10 | 40             | 26         | 28                 | 5.         | 21. | 55. | 12 | 44             | 28         | 28                 | 7.         | 9.  | 59. | 6  | 48             | 31         |
| 29                 | 4.         | 3.  | 51. | 18 | 40             | 26         | 29                 | 5.         | 23. | 31. | 20 | 44             | 28         | 29                 | 7.         | 11. | 35. | 14 | 48             | 31         |
| 30                 | 4.         | 5.  | 27. | 26 | 40             | 26         | 30                 | 5.         | 25. | 7.  | 28 | 44             | 28         | 30                 | 7.         | 13. | 11. | 22 | 48             | 31         |
| 31                 | 4.         | 7.  | 3.  | 33 | 40             | 26         |                    |            |     |     |    |                |            | 31                 | 7.         | 14. | 47. | 30 | 49             | 31         |



## TABLES OF VENUS.

TABLE IV. Mean Motion of Venus for *Hours*, *Minutes*, and *Seconds*.

|        | Mot. Long. |     |    |      | Mot. Long. |     |      |     | Mot. Long. |  |  |
|--------|------------|-----|----|------|------------|-----|------|-----|------------|--|--|
| Hours. |            |     |    | Min. | / "        |     | Min. | / " |            |  |  |
|        | D.         | M.  | S. | Sec. | "          | ''' | Sec. | "   | '''        |  |  |
| 1      | O.         | 4.  | 0  | 1    | O.         | 4   | 31   | 2.  | 4          |  |  |
| 2      | O.         | 8.  | 1  | 2    | O.         | 8   | 32   | 2.  | 8          |  |  |
| 3      | O.         | 12. | 1  | 3    | O.         | 12  | 33   | 2.  | 12         |  |  |
| 4      | O.         | 16. | 1  | 4    | O.         | 16  | 34   | 2.  | 16         |  |  |
| 5      | O.         | 20. | 2  | 5    | O.         | 20  | 35   | 2.  | 20         |  |  |
| 6      | O.         | 24. | 2  | 6    | O.         | 24  | 36   | 2.  | 24         |  |  |
| 7      | O.         | 28. | 2  | 7    | O.         | 28  | 37   | 2.  | 28         |  |  |
| 8      | O.         | 32. | 3  | 8    | O.         | 32  | 38   | 2.  | 32         |  |  |
| 9      | O.         | 36. | 3  | 9    | O.         | 36  | 39   | 2.  | 36         |  |  |
| 10     | O.         | 40. | 3  | 10   | O.         | 40  | 40   | 2.  | 40         |  |  |
| 11     | O.         | 44. | 4  | 11   | O.         | 44  | 41   | 2.  | 44         |  |  |
| 12     | O.         | 48. | 4  | 12   | O.         | 48  | 42   | 2.  | 48         |  |  |
| 13     | O.         | 52. | 4  | 13   | O.         | 52  | 43   | 2.  | 52         |  |  |
| 14     | O.         | 56. | 5  | 14   | O.         | 56  | 44   | 2.  | 56         |  |  |
| 15     | I.         | 0.  | 5  | 15   | I.         | 0   | 45   | 3.  | 0          |  |  |
| 16     | I.         | 4.  | 5  | 16   | I.         | 4   | 46   | 3.  | 4          |  |  |
| 17     | I.         | 8.  | 6  | 17   | I.         | 8   | 47   | 3.  | 8          |  |  |
| 18     | I.         | 12. | 6  | 18   | I.         | 12  | 48   | 3.  | 12         |  |  |
| 19     | I.         | 16. | 6  | 19   | I.         | 16  | 49   | 3.  | 16         |  |  |
| 20     | I.         | 20. | 6  | 20   | I.         | 20  | 50   | 3.  | 20         |  |  |
| 21     | I.         | 24. | 7  | 21   | I.         | 24  | 51   | 3.  | 24         |  |  |
| 22     | I.         | 28. | 7  | 22   | I.         | 28  | 52   | 3.  | 28         |  |  |
| 23     | I.         | 32. | 7  | 23   | I.         | 32  | 53   | 3.  | 32         |  |  |
| 24     | I.         | 36. | 8  | 24   | I.         | 36  | 54   | 3.  | 36         |  |  |
|        |            |     |    | 25   | I.         | 40  | 55   | 3.  | 40         |  |  |
|        |            |     |    | 26   | I.         | 44  | 56   | 3.  | 44         |  |  |
|        |            |     |    | 27   | I.         | 48  | 57   | 3.  | 48         |  |  |
|        |            |     |    | 28   | I.         | 52  | 58   | 3.  | 52         |  |  |
|        |            |     |    | 29   | I.         | 56  | 59   | 3.  | 56         |  |  |
|        |            |     |    | 30   | 2.         | 0   | 60   | 4.  | 0          |  |  |



TABLE V. Equation of the Orbit of Venus for 1780.

| ARGUMENT. <i>Mean Anomaly of Venus.</i> |        |           |        |            |        |              |        |             |        |            |        |       |    |
|-----------------------------------------|--------|-----------|--------|------------|--------|--------------|--------|-------------|--------|------------|--------|-------|----|
| Sig. O. —                               |        | Sig. I. — |        | Sig. II. — |        | Sig. III. —  |        | Sig. IV. —  |        | Sig. V. —  |        |       |    |
| D.                                      | M. s.  | Diff.     | M. s.  | Diff.      | M. s.  | Diff.        | M. s.  | Diff.       | M. s.  | Diff.      | M. s.  | Diff. | D. |
| 0                                       | 0. 0   | "         | 23. 29 | "          | 40. 49 | "            | 47. 19 | "           | 41. 10 | "          | 23. 51 | "     | 30 |
| 1                                       | 0. 49  | 49        | 24. 12 | 43         | 41. 13 | 24           | 47. 20 | 1           | 40. 45 | 25         | 23. 7  | 44    | 29 |
| 2                                       | 1. 38  | 49        | 24. 54 | 41         | 41. 37 | 23           | 47. 19 | 2           | 40. 19 | 26         | 22. 23 | 44    | 28 |
| 3                                       | 2. 27  | 49        | 25. 35 | 41         | 42. 0  | 23           | 47. 17 | 3           | 39. 53 | 27         | 21. 39 | 44    | 27 |
| 4                                       | 3. 16  | 49        | 26. 16 | 41         | 42. 23 | 21           | 47. 14 | 2           | 39. 26 | 28         | 20. 55 | 45    | 26 |
| 5                                       | 4. 5   | 49        | 26. 57 | 40         | 42. 44 | 21           | 47. 11 | 4           | 38. 58 | 29         | 20. 10 | 46    | 25 |
| 6                                       | 4. 54  | 49        | 27. 37 | 40         | 43. 5  | 20           | 47. 7  | 5           | 38. 29 | 29         | 19. 24 | 46    | 24 |
| 7                                       | 5. 43  | 49        | 28. 17 | 39         | 43. 25 | 20           | 47. 2  | 6           | 38. 0  | 30         | 18. 38 | 46    | 23 |
| 8                                       | 6. 32  | 48        | 28. 56 | 39         | 43. 45 | 18           | 46. 56 | 7           | 37. 30 | 31         | 17. 52 | 46    | 22 |
| 9                                       | 7. 20  | 49        | 29. 35 | 38         | 44. 3  | 18           | 46. 49 | 8           | 36. 59 | 32         | 17. 6  | 47    | 21 |
| 10                                      | 8. 9   | 49        | 30. 13 | 38         | 44. 21 | 17           | 46. 41 | 9           | 36. 27 | 32         | 16. 19 | 47    | 20 |
| 11                                      | 8. 58  | 48        | 30. 51 | 37         | 44. 38 | 16           | 46. 32 | 10          | 35. 55 | 32         | 15. 32 | 47    | 19 |
| 12                                      | 9. 46  | 47        | 31. 28 | 37         | 44. 54 | 15           | 46. 22 | 10          | 35. 23 | 34         | 14. 45 | 48    | 18 |
| 13                                      | 10. 33 | 48        | 32. 5  | 36         | 45. 9  | 14           | 46. 12 | 11          | 34. 49 | 34         | 13. 57 | 48    | 17 |
| 14                                      | 11. 21 | 48        | 32. 41 | 35         | 45. 23 | 14           | 46. 1  | 12          | 34. 15 | 35         | 13. 9  | 48    | 16 |
| 15                                      | 12. 9  | 47        | 33. 16 | 35         | 45. 37 | 13           | 45. 49 | 13          | 33. 40 | 35         | 12. 21 | 48    | 15 |
| 16                                      | 12. 56 | 48        | 33. 51 | 34         | 45. 50 | 12           | 45. 36 | 13          | 33. 5  | 36         | 11. 33 | 49    | 14 |
| 17                                      | 13. 44 | 47        | 34. 25 | 33         | 46. 2  | 11           | 45. 23 | 15          | 32. 29 | 37         | 10. 44 | 49    | 13 |
| 18                                      | 14. 31 | 46        | 34. 58 | 34         | 46. 13 | 10           | 45. 8  | 15          | 31. 52 | 37         | 9. 55  | 49    | 12 |
| 19                                      | 15. 17 | 46        | 35. 32 | 32         | 46. 23 | 9            | 44. 53 | 17          | 31. 15 | 38         | 9. 6   | 49    | 11 |
| 20                                      | 16. 3  | 46        | 36. 4  | 31         | 46. 32 | 9            | 44. 36 | 17          | 30. 37 | 38         | 8. 17  | 49    | 10 |
| 21                                      | 16. 49 | 46        | 36. 35 | 31         | 46. 41 | 8            | 44. 19 | 17          | 29. 59 | 39         | 7. 28  | 49    | 9  |
| 22                                      | 17. 35 | 46        | 37. 6  | 30         | 46. 49 | 7            | 44. 2  | 19          | 29. 20 | 39         | 6. 39  | 50    | 8  |
| 23                                      | 18. 21 | 45        | 37. 36 | 30         | 46. 56 | 6            | 43. 43 | 20          | 28. 41 | 40         | 5. 49  | 50    | 7  |
| 24                                      | 19. 6  | 45        | 38. 6  | 29         | 47. 2  | 5            | 43. 23 | 20          | 28. 1  | 40         | 4. 59  | 49    | 6  |
| 25                                      | 19. 51 | 44        | 38. 35 | 28         | 47. 7  | 4            | 43. 3  | 21          | 27. 21 | 41         | 4. 10  | 50    | 5  |
| 26                                      | 20. 35 | 44        | 39. 3  | 28         | 47. 11 | 3            | 42. 42 | 22          | 26. 40 | 41         | 3. 20  | 50    | 4  |
| 27                                      | 21. 19 | 44        | 39. 31 | 26         | 47. 14 | 3            | 42. 20 | 22          | 25. 59 | 42         | 2. 30  | 50    | 3  |
| 28                                      | 22. 3  | 43        | 39. 57 | 26         | 47. 17 | 2            | 41. 58 | 24          | 25. 17 | 43         | 1. 40  | 50    | 2  |
| 29                                      | 22. 46 | 43        | 40. 23 | 26         | 47. 19 | 0            | 41. 34 | 24          | 24. 34 | 43         | 0. 50  | 50    | 1  |
| 30                                      | 23. 29 |           | 40. 49 |            | 47. 19 |              | 41. 10 |             | 23. 51 | 43         | 0. 0   | 50    | 0  |
| Sig. XI. +                              |        | Sig. X. + |        | Sig. IX. + |        | Sig. VIII. + |        | Sig. VII. + |        | Sig. VI. + |        |       |    |

The greatest equation diminishes 25" in 100 years. The others are proportional at the rate of 0",5 for a minute.



TABLE VI. Logarithms of the Distance of Venus from the Sun for 1780.

| ARGUMENT. <i>Mean Anomaly of Venus.</i> |                        |         |                        |         |                         |         |    | Corrections of the Logarithms<br>after 100 Years.                                                                                          |    |      |         |
|-----------------------------------------|------------------------|---------|------------------------|---------|-------------------------|---------|----|--------------------------------------------------------------------------------------------------------------------------------------------|----|------|---------|
| D.                                      | Sig. O.<br>Logarithms. | Differ. | Sig. I.<br>Logarithms. | Differ. | Sig. II.<br>Logarithms. | Differ. | D. |                                                                                                                                            |    |      |         |
| 0                                       | 9,862318               |         | 9,861924               | 26      | 9,860845                | 44      | 30 | SIG.                                                                                                                                       | D. | COR. | SIG. D. |
| 1                                       | 9,862317               | 1       | 9,861898               | 26      | 9,860801                | 46      | 29 |                                                                                                                                            |    |      |         |
| 2                                       | 9,862315               | 2       | 9,861872               | 28      | 9,860755                | 46      | 28 | O.                                                                                                                                         | 0  | -26  | XII. 0  |
| 3                                       | 9,862313               | 2       | 9,861844               | 28      | 9,860709                | 46      | 27 |                                                                                                                                            |    |      |         |
|                                         |                        | 3       |                        |         |                         | 46      |    |                                                                                                                                            |    |      |         |
| 4                                       | 9,862310               | 3       | 9,861816               | 30      | 9,860663                | 47      | 26 | I.                                                                                                                                         | 0  | 22   | XI. 0   |
| 5                                       | 9,862306               | 4       | 9,861786               | 29      | 9,860616                | 47      | 25 |                                                                                                                                            |    |      |         |
| 6                                       | 9,862301               | 5       | 9,861757               | 31      | 9,860569                | 47      | 24 |                                                                                                                                            |    |      |         |
| 7                                       | 9,862295               | 6       | 9,861726               | 31      | 9,860522                | 48      | 23 | II.                                                                                                                                        | 0  | 13   | X. 0    |
|                                         |                        | 8       |                        |         |                         | 48      |    |                                                                                                                                            |    |      |         |
| 8                                       | 9,862289               | 8       | 9,861695               | 32      | 9,860474                | 48      | 22 |                                                                                                                                            |    |      |         |
| 9                                       | 9,862281               | 8       | 9,861663               | 33      | 9,860426                | 49      | 21 | III.                                                                                                                                       | 0  | -5   | IX. 0   |
| 10                                      | 9,862273               | 8       | 9,861630               | 33      | 9,860377                | 49      | 20 |                                                                                                                                            |    |      |         |
| 11                                      | 9,862264               | 9       | 9,861597               | 33      | 9,860328                | 49      | 19 |                                                                                                                                            |    |      |         |
|                                         |                        | 11      |                        |         |                         | 49      |    |                                                                                                                                            |    |      |         |
| 12                                      | 9,862253               | 11      | 9,861563               | 34      | 9,860279                | 49      | 18 | IV.                                                                                                                                        | 0  | 13   | VIII. 0 |
| 13                                      | 9,862242               | 11      | 9,861528               | 35      | 9,860230                | 50      | 17 |                                                                                                                                            |    |      |         |
| 14                                      | 9,862230               | 12      | 9,861493               | 35      | 9,860180                | 50      | 16 |                                                                                                                                            |    |      |         |
| 15                                      | 9,862217               | 13      | 9,861457               | 36      | 9,860130                | 50      | 15 | V.                                                                                                                                         | 0  | 22   | VII. 0  |
|                                         |                        | 13      |                        |         |                         | 50      |    |                                                                                                                                            |    |      |         |
| 16                                      | 9,862204               | 15      | 9,861420               | 37      | 9,860080                | 51      | 14 |                                                                                                                                            |    |      |         |
| 17                                      | 9,862189               | 15      | 9,861383               | 38      | 9,860029                | 51      | 13 | VI.                                                                                                                                        | 0  | +26  | VI. 0   |
| 18                                      | 9,862174               | 17      | 9,861345               | 39      | 9,859979                | 51      | 12 |                                                                                                                                            |    |      |         |
| 19                                      | 9,862157               | 17      | 9,861306               | 39      | 9,859928                | 51      | 11 |                                                                                                                                            |    |      |         |
|                                         |                        | 17      |                        |         |                         | 51      |    |                                                                                                                                            |    |      |         |
| 20                                      | 9,862140               | 18      | 9,861267               | 39      | 9,859877                | 52      | 10 | This Equation of the Distance<br>arises from the Diminution of the<br>Equation of Venus. It changes<br>it's Sign for any time before 1780. |    |      |         |
| 21                                      | 9,862122               | 18      | 9,861228               | 41      | 9,859825                | 51      | 9  |                                                                                                                                            |    |      |         |
| 22                                      | 9,862104               | 20      | 9,861187               | 41      | 9,859774                | 52      | 8  |                                                                                                                                            |    |      |         |
| 23                                      | 9,862084               | 20      | 9,861146               | 41      | 9,859722                | 51      | 7  |                                                                                                                                            |    |      |         |
|                                         |                        | 20      |                        |         |                         | 51      |    |                                                                                                                                            |    |      |         |
| 24                                      | 9,862064               | 21      | 9,861105               | 42      | 9,859671                | 52      | 6  |                                                                                                                                            |    |      |         |
| 25                                      | 9,862043               | 22      | 9,861063               | 43      | 9,859619                | 52      | 5  |                                                                                                                                            |    |      |         |
| 26                                      | 9,862021               | 23      | 9,861020               | 42      | 9,859567                | 52      | 4  |                                                                                                                                            |    |      |         |
| 27                                      | 9,861998               | 24      | 9,860978               | 44      | 9,859515                | 52      | 3  |                                                                                                                                            |    |      |         |
|                                         |                        | 24      |                        |         |                         | 52      |    |                                                                                                                                            |    |      |         |
| 28                                      | 9,861974               | 25      | 9,860934               | 44      | 9,859463                | 52      | 2  |                                                                                                                                            |    |      |         |
| 29                                      | 9,861949               | 25      | 9,860890               | 45      | 9,859411                | 52      | 1  |                                                                                                                                            |    |      |         |
| 30                                      | 9,861924               | 25      | 9,860845               | 45      | 9,859359                | 52      | 0  |                                                                                                                                            |    |      |         |
|                                         | Sig. XI.               |         | Sig. X.                |         | Sig. IX.                |         |    |                                                                                                                                            |    |      |         |



TABLE VI. Logarithms of the Distance of Venus from the Sun for 1780.

| ARGUMENT. <i>Mean Anomaly of Venus.</i> |             |         |             |         |             |         |    |
|-----------------------------------------|-------------|---------|-------------|---------|-------------|---------|----|
|                                         | Sig. III.   |         | Sig. IV.    |         | Sig. V.     |         |    |
| D.                                      | Logarithms. | Differ. | Logarithms. | Differ. | Logarithms. | Differ. | D. |
| 0                                       | 9,859359    | 53      | 9,857856    | 45      | 9,856746    | 26      | 30 |
| 1                                       | 9,859306    | 52      | 9,857811    | 45      | 9,856720    | 25      | 29 |
| 2                                       | 9,859254    | 52      | 9,857766    | 45      | 9,856695    | 25      | 28 |
| 3                                       | 9,859202    | 52      | 9,857721    | 44      | 9,856670    | 23      | 27 |
| 4                                       | 9,859150    | 52      | 9,857677    | 43      | 9,856647    | 23      | 26 |
| 5                                       | 9,859098    | 52      | 9,857634    | 43      | 9,856624    | 22      | 25 |
| 6                                       | 9,859046    | 52      | 9,857591    | 43      | 9,856602    | 22      | 24 |
| 7                                       | 9,858994    | 52      | 9,857548    | 42      | 9,856580    | 20      | 23 |
| 8                                       | 9,858942    | 52      | 9,857506    | 41      | 9,856560    | 19      | 22 |
| 9                                       | 9,858890    | 51      | 9,857465    | 41      | 9,856541    | 19      | 21 |
| 10                                      | 9,858839    | 52      | 9,857424    | 40      | 9,856522    | 18      | 20 |
| 11                                      | 9,858787    | 51      | 9,857384    | 40      | 9,856504    | 17      | 19 |
| 12                                      | 9,858736    | 52      | 9,857344    | 39      | 9,856487    | 16      | 18 |
| 13                                      | 9,858684    | 50      | 9,857305    | 38      | 9,856471    | 15      | 17 |
| 14                                      | 9,858634    | 51      | 9,857267    | 38      | 9,856456    | 14      | 16 |
| 15                                      | 9,858583    | 51      | 9,857229    | 37      | 9,856442    | 13      | 15 |
| 16                                      | 9,858532    | 50      | 9,857192    | 36      | 9,856429    | 13      | 14 |
| 17                                      | 9,858482    | 50      | 9,857156    | 36      | 9,856416    | 11      | 13 |
| 18                                      | 9,858432    | 50      | 9,857120    | 35      | 9,856405    | 11      | 12 |
| 19                                      | 9,858382    | 49      | 9,857085    | 35      | 9,856394    | 10      | 11 |
| 20                                      | 9,858333    | 50      | 9,857050    | 33      | 9,856384    | 8       | 10 |
| 21                                      | 9,858283    | 49      | 9,857017    | 33      | 9,856376    | 8       | 9  |
| 22                                      | 9,858234    | 48      | 9,856984    | 33      | 9,856368    | 7       | 8  |
| 23                                      | 9,858186    | 48      | 9,856951    | 31      | 9,856361    | 6       | 7  |
| 24                                      | 9,858138    | 48      | 9,856920    | 31      | 9,856355    | 5       | 6  |
| 25                                      | 9,858090    | 48      | 9,856889    | 30      | 9,856350    | 5       | 5  |
| 26                                      | 9,858042    | 47      | 9,856859    | 29      | 9,856345    | 3       | 4  |
| 27                                      | 9,857995    | 47      | 9,856830    | 29      | 9,856342    | 2       | 3  |
| 28                                      | 9,857948    | 46      | 9,856801    | 28      | 9,856340    | 2       | 2  |
| 29                                      | 9,857902    | 46      | 9,856773    | 27      | 9,856338    | 1       | 1  |
| 30                                      | 9,857856    |         | 9,856746    |         | 9,856337    |         | 0  |
|                                         | Sig. VIII.  |         | Sig. VII.   |         | Sig. VI.    |         |    |



## TABLES OF VENUS.

TABLE VII. Heliocentric Latitude of Venus, with the Reduction to the Ecliptic.

| ARGUMENT. <i>The Longitude of Venus — that of the Node.</i> |                           |                 |                      |                            |                 |                      |                              |                 |                      |          |
|-------------------------------------------------------------|---------------------------|-----------------|----------------------|----------------------------|-----------------|----------------------|------------------------------|-----------------|----------------------|----------|
| Sig.                                                        | O. lat. N.<br>VI. lat. S. | O.<br>VI.       |                      | I. lat. N.<br>VII. lat. S. | I.<br>VII.      |                      | II. lat. N.<br>VIII. lat. S. | II.<br>VIII.    |                      |          |
| Degrees.                                                    | Latitude.                 | Sub.<br>Long    | Sub.<br>from<br>Log. | Latitude.                  | Sub.<br>Long.   | Sub.<br>from<br>Log. | Latitude.                    | Sub.<br>Long.   | Sub.<br>from<br>Log. | Degrees. |
|                                                             | D. M. S.                  | M. S.           |                      | D. M. S.                   | M. S.           |                      | D. M. S.                     | M. S.           |                      |          |
| 0                                                           | 0. 0. 0                   | 0. 0            | 0                    | I. 41. 45                  | 2. 37           | 190                  | 2. 56. 17                    | 2. 37           | 571                  | 30       |
| 1                                                           | 0. 3. 33                  | 0. 6            | 0                    | I. 44. 48                  | 2. 40           | 202                  | 2. 58. 2                     | 2. 33           | 583                  | 29       |
| 2                                                           | 0. 7. 6                   | 0. 13           | 1                    | I. 47. 50                  | 2. 43           | 214                  | 2. 59. 44                    | 2. 30           | 594                  | 28       |
| 3                                                           | 0. 10. 39                 | 0. 19           | 2                    | I. 50. 50                  | 2. 45           | 226                  | 3. 1. 22                     | 2. 26           | 605                  | 27       |
| 4                                                           | 0. 14. 12                 | 0. 25           | 4                    | I. 53. 48                  | 2. 47           | 238                  | 3. 2. 57                     | 2. 23           | 615                  | 26       |
| 5                                                           | 0. 17. 44                 | 0. 31           | 6                    | I. 56. 44                  | 2. 50           | 250                  | 3. 4. 29                     | 2. 19           | 626                  | 25       |
| 6                                                           | 0. 21. 16                 | 0. 38           | 8                    | I. 59. 37                  | 2. 52           | 263                  | 3. 5. 58                     | 2. 15           | 636                  | 24       |
| 7                                                           | 0. 24. 48                 | 0. 44           | 11                   | 2. 2. 28                   | 2. 54           | 276                  | 3. 7. 23                     | 2. 10           | 645                  | 23       |
| 8                                                           | 0. 28. 19                 | 0. 50           | 15                   | 2. 5. 17                   | 2. 55           | 288                  | 3. 8. 45                     | 2. 6            | 655                  | 22       |
| 9                                                           | 0. 31. 50                 | 0. 56           | 19                   | 2. 8. 4                    | 2. 57           | 301                  | 3. 10. 3                     | 2. 1            | 664                  | 21       |
| 10                                                          | 0. 35. 20                 | 1. 2            | 23                   | 2. 10. 49                  | 2. 58           | 314                  | 3. 11. 18                    | 1. 56           | 673                  | 20       |
| 11                                                          | 0. 38. 49                 | 1. 8            | 28                   | 2. 13. 31                  | 2. 59           | 328                  | 3. 12. 29                    | 1. 51           | 681                  | 19       |
| 12                                                          | 0. 42. 18                 | 1. 13           | 33                   | 2. 16. 11                  | 3. 0            | 341                  | 3. 13. 37                    | 1. 46           | 689                  | 18       |
| 13                                                          | 0. 45. 46                 | 1. 19           | 38                   | 2. 18. 48                  | 3. 1            | 354                  | 3. 14. 41                    | 1. 41           | 697                  | 17       |
| 14                                                          | 0. 49. 13                 | 1. 25           | 44                   | 2. 21. 23                  | 3. 1            | 367                  | 3. 15. 41                    | 1. 36           | 704                  | 16       |
| 15                                                          | 0. 52. 40                 | 1. 30           | 51                   | 2. 23. 55                  | 3. 1            | 380                  | 3. 16. 38                    | 1. 30           | 711                  | 15       |
| 16                                                          | 0. 56. 5                  | 1. 36           | 58                   | 2. 26. 24                  | 3. 1            | 394                  | 3. 17. 32                    | 1. 25           | 717                  | 14       |
| 17                                                          | 0. 59. 29                 | 1. 41           | 65                   | 2. 28. 51                  | 3. 1            | 407                  | 3. 18. 22                    | 1. 19           | 723                  | 13       |
| 18                                                          | 1. 2. 53                  | 1. 46           | 73                   | 2. 31. 15                  | 3. 0            | 420                  | 3. 19. 7                     | 1. 13           | 729                  | 12       |
| 19                                                          | 1. 6. 15                  | 1. 51           | 80                   | 2. 33. 36                  | 2. 59           | 434                  | 3. 19. 50                    | 1. 8            | 734                  | 11       |
| 20                                                          | 1. 9. 35                  | 1. 56           | 89                   | 2. 35. 55                  | 2. 58           | 447                  | 3. 20. 29                    | 1. 2            | 739                  | 10       |
| 21                                                          | 1. 12. 54                 | 2. 1            | 98                   | 2. 38. 11                  | 2. 57           | 460                  | 3. 21. 4                     | 0. 56           | 743                  | 9        |
| 22                                                          | 1. 16. 13                 | 2. 6            | 107                  | 2. 40. 23                  | 2. 55           | 473                  | 3. 21. 36                    | 0. 50           | 747                  | 8        |
| 23                                                          | 1. 19. 31                 | 2. 10           | 116                  | 2. 42. 33                  | 2. 54           | 486                  | 3. 22. 4                     | 0. 44           | 751                  | 7        |
| 24                                                          | 1. 22. 46                 | 2. 15           | 126                  | 2. 44. 40                  | 2. 52           | 498                  | 3. 22. 28                    | 0. 38           | 754                  | 6        |
| 25                                                          | 1. 26. 0                  | 2. 19           | 136                  | 2. 46. 44                  | 2. 50           | 511                  | 3. 22. 48                    | 0. 31           | 756                  | 5        |
| 26                                                          | 1. 29. 12                 | 2. 23           | 146                  | 2. 48. 45                  | 2. 47           | 523                  | 3. 23. 5                     | 0. 25           | 758                  | 4        |
| 27                                                          | 1. 32. 23                 | 2. 26           | 157                  | 2. 50. 42                  | 2. 45           | 536                  | 3. 23. 18                    | 0. 19           | 760                  | 3        |
| 28                                                          | 1. 35. 32                 | 2. 30           | 168                  | 2. 52. 37                  | 2. 43           | 548                  | 3. 23. 27                    | 0. 13           | 761                  | 2        |
| 29                                                          | 1. 38. 39                 | 2. 33           | 179                  | 2. 54. 29                  | 2. 40           | 560                  | 3. 23. 33                    | 0. 6            | 762                  | 1        |
| 30                                                          | 1. 41. 45                 | 2. 37           | 190                  | 2. 56. 17                  | 2. 37           | 571                  | 3. 23. 35                    | 0. 0            | 762                  | 0        |
|                                                             | XI. lat. S.<br>V. lat. N. | Add to<br>Long. | Sub.<br>Log.         | X. lat. S.<br>IV. lat. N.  | Add to<br>Long. | Sub.<br>Log.         | IX. lat. S.<br>III. lat. N.  | Add to<br>Long. | Sub.<br>Log.         | Sig.     |
|                                                             |                           |                 | XI.<br>V.            |                            |                 | X.<br>IV.            |                              |                 | IX.<br>III.          |          |



Table 1. Summary of the results of the experiments.

| Experiment | Time (min) | Temperature (°C) | Pressure (atm) | Yield (%) |
|------------|------------|------------------|----------------|-----------|
| 1          | 10         | 100              | 1.0            | 85        |
| 2          | 15         | 100              | 1.0            | 88        |
| 3          | 20         | 100              | 1.0            | 90        |
| 4          | 25         | 100              | 1.0            | 92        |
| 5          | 30         | 100              | 1.0            | 94        |
| 6          | 35         | 100              | 1.0            | 96        |
| 7          | 40         | 100              | 1.0            | 98        |
| 8          | 45         | 100              | 1.0            | 99        |
| 9          | 50         | 100              | 1.0            | 100       |
| 10         | 55         | 100              | 1.0            | 100       |
| 11         | 60         | 100              | 1.0            | 100       |
| 12         | 65         | 100              | 1.0            | 100       |
| 13         | 70         | 100              | 1.0            | 100       |
| 14         | 75         | 100              | 1.0            | 100       |
| 15         | 80         | 100              | 1.0            | 100       |
| 16         | 85         | 100              | 1.0            | 100       |
| 17         | 90         | 100              | 1.0            | 100       |
| 18         | 95         | 100              | 1.0            | 100       |
| 19         | 100        | 100              | 1.0            | 100       |
| 20         | 105        | 100              | 1.0            | 100       |
| 21         | 110        | 100              | 1.0            | 100       |
| 22         | 115        | 100              | 1.0            | 100       |
| 23         | 120        | 100              | 1.0            | 100       |
| 24         | 125        | 100              | 1.0            | 100       |
| 25         | 130        | 100              | 1.0            | 100       |
| 26         | 135        | 100              | 1.0            | 100       |
| 27         | 140        | 100              | 1.0            | 100       |
| 28         | 145        | 100              | 1.0            | 100       |
| 29         | 150        | 100              | 1.0            | 100       |
| 30         | 155        | 100              | 1.0            | 100       |
| 31         | 160        | 100              | 1.0            | 100       |
| 32         | 165        | 100              | 1.0            | 100       |
| 33         | 170        | 100              | 1.0            | 100       |
| 34         | 175        | 100              | 1.0            | 100       |
| 35         | 180        | 100              | 1.0            | 100       |
| 36         | 185        | 100              | 1.0            | 100       |
| 37         | 190        | 100              | 1.0            | 100       |
| 38         | 195        | 100              | 1.0            | 100       |
| 39         | 200        | 100              | 1.0            | 100       |
| 40         | 205        | 100              | 1.0            | 100       |
| 41         | 210        | 100              | 1.0            | 100       |
| 42         | 215        | 100              | 1.0            | 100       |
| 43         | 220        | 100              | 1.0            | 100       |
| 44         | 225        | 100              | 1.0            | 100       |
| 45         | 230        | 100              | 1.0            | 100       |
| 46         | 235        | 100              | 1.0            | 100       |
| 47         | 240        | 100              | 1.0            | 100       |
| 48         | 245        | 100              | 1.0            | 100       |
| 49         | 250        | 100              | 1.0            | 100       |
| 50         | 255        | 100              | 1.0            | 100       |
| 51         | 260        | 100              | 1.0            | 100       |
| 52         | 265        | 100              | 1.0            | 100       |
| 53         | 270        | 100              | 1.0            | 100       |
| 54         | 275        | 100              | 1.0            | 100       |
| 55         | 280        | 100              | 1.0            | 100       |
| 56         | 285        | 100              | 1.0            | 100       |
| 57         | 290        | 100              | 1.0            | 100       |
| 58         | 295        | 100              | 1.0            | 100       |
| 59         | 300        | 100              | 1.0            | 100       |
| 60         | 305        | 100              | 1.0            | 100       |
| 61         | 310        | 100              | 1.0            | 100       |
| 62         | 315        | 100              | 1.0            | 100       |
| 63         | 320        | 100              | 1.0            | 100       |
| 64         | 325        | 100              | 1.0            | 100       |
| 65         | 330        | 100              | 1.0            | 100       |
| 66         | 335        | 100              | 1.0            | 100       |
| 67         | 340        | 100              | 1.0            | 100       |
| 68         | 345        | 100              | 1.0            | 100       |
| 69         | 350        | 100              | 1.0            | 100       |
| 70         | 355        | 100              | 1.0            | 100       |
| 71         | 360        | 100              | 1.0            | 100       |
| 72         | 365        | 100              | 1.0            | 100       |
| 73         | 370        | 100              | 1.0            | 100       |
| 74         | 375        | 100              | 1.0            | 100       |
| 75         | 380        | 100              | 1.0            | 100       |
| 76         | 385        | 100              | 1.0            | 100       |
| 77         | 390        | 100              | 1.0            | 100       |
| 78         | 395        | 100              | 1.0            | 100       |
| 79         | 400        | 100              | 1.0            | 100       |
| 80         | 405        | 100              | 1.0            | 100       |
| 81         | 410        | 100              | 1.0            | 100       |
| 82         | 415        | 100              | 1.0            | 100       |
| 83         | 420        | 100              | 1.0            | 100       |
| 84         | 425        | 100              | 1.0            | 100       |
| 85         | 430        | 100              | 1.0            | 100       |
| 86         | 435        | 100              | 1.0            | 100       |
| 87         | 440        | 100              | 1.0            | 100       |
| 88         | 445        | 100              | 1.0            | 100       |
| 89         | 450        | 100              | 1.0            | 100       |
| 90         | 455        | 100              | 1.0            | 100       |
| 91         | 460        | 100              | 1.0            | 100       |
| 92         | 465        | 100              | 1.0            | 100       |
| 93         | 470        | 100              | 1.0            | 100       |
| 94         | 475        | 100              | 1.0            | 100       |
| 95         | 480        | 100              | 1.0            | 100       |
| 96         | 485        | 100              | 1.0            | 100       |
| 97         | 490        | 100              | 1.0            | 100       |
| 98         | 495        | 100              | 1.0            | 100       |
| 99         | 500        | 100              | 1.0            | 100       |
| 100        | 505        | 100              | 1.0            | 100       |



## TABLES OF MARS.

TABLE I. *Epochs* of the Mean Longitude of Mars, with the Arguments of the Equations.

|          |      | Mean Long.       | Aphelion.     | Node.         |
|----------|------|------------------|---------------|---------------|
| YEARS.   |      | S. D. M. S.      | S. D. M. S.   | S. D. M. S.   |
| B. O. S. | 1500 | 1. 23. 46. 9,4   | 4. 26. 48. 19 | 1. 15. 44. 22 |
| B. N. S. | 1600 | 3. 20. 13. 33,6  | 4. 28. 39. 57 | 1. 16. 29. 54 |
| B.       | 1620 | 11. 8. 23. 55,8  | 4. 29. 2. 17  | 1. 16. 39. 1  |
| B.       | 1640 | 6. 26. 54. 17,9  | 4. 29. 24. 37 | 1. 16. 48. 7  |
| B.       | 1660 | 2. 15. 14. 40,1  | 4. 29. 46. 57 | 1. 16. 57. 14 |
| B.       | 1680 | 10. 3. 35. 2,2   | 5. 0. 9. 17   | 1. 17. 6. 21  |
| C.       | 1700 | 5. 21. 23. 57,7  | 5. 0. 31. 37  | 1. 17. 15. 27 |
| B.       | 1720 | 1. 9. 44. 19,8   | 5. 0. 53. 57  | 1. 17. 24. 34 |
| B.       | 1740 | 8. 28. 4. 42,0   | 5. 1. 16. 17  | 1. 17. 33. 40 |
| B.       | 1760 | 4. 16. 25. 4,2   | 5. 1. 38. 37  | 1. 17. 42. 47 |
| B.       | 1780 | 0. 4. 45. 26,3   | 5. 2. 0. 57   | 1. 17. 51. 54 |
| C.       | 1800 | 7. 22. 34. 21,8  | 5. 2. 23. 17  | 1. 18. 1. 1   |
| B.       | 1801 | 2. 3. 51. 31,2   | 5. 2. 24. 24  | 1. 18. 1. 28  |
|          | 1802 | 8. 15. 8. 40,7   | 5. 2. 25. 31  | 1. 18. 1. 55  |
|          | 1803 | 2. 26. 25. 50,1  | 5. 2. 26. 38  | 1. 18. 2. 23  |
|          | 1804 | 9. 8. 14. 26,2   | 5. 2. 27. 45  | 1. 18. 2. 50  |
|          | 1805 | 3. 19. 31. 35,6  | 5. 2. 28. 52  | 1. 18. 3. 17  |
| B.       | 1806 | 10. 0. 48. 35,1  | 5. 2. 29. 59  | 1. 18. 3. 44  |
|          | 1807 | 4. 12. 5. 44,5   | 5. 2. 31. 6   | 1. 18. 4. 12  |
|          | 1808 | 10. 23. 54. 30,7 | 5. 2. 32. 13  | 1. 18. 4. 39  |
|          | 1809 | 5. 5. 11. 40,1   | 5. 2. 33. 20  | 1. 18. 5. 6   |
|          | 1810 | 11. 16. 28. 49,6 | 5. 2. 34. 27  | 1. 18. 5. 34  |
| B.       | 1811 | 5. 27. 45. 59,0  | 5. 2. 35. 34  | 1. 18. 6. 1   |
|          | 1812 | 0. 9. 34. 35,1   | 5. 2. 36. 41  | 1. 18. 6. 28  |
|          | 1813 | 6. 20. 51. 44,5  | 5. 2. 37. 48  | 1. 18. 6. 56  |
|          | 1814 | 1. 2. 8. 54,0    | 5. 2. 38. 55  | 1. 18. 7. 23  |
|          | 1815 | 7. 13. 26. 3,4   | 5. 2. 40. 2   | 1. 18. 7. 50  |
| B.       | 1816 | 1. 25. 14. 39,6  | 5. 2. 41. 9   | 1. 18. 8. 18  |
|          | 1817 | 8. 6. 31. 49,0   | 5. 2. 42. 16  | 1. 18. 8. 45  |
|          | 1818 | 2. 17. 48. 58,5  | 5. 2. 43. 23  | 1. 18. 9. 12  |
|          | 1819 | 8. 29. 6. 7,9    | 5. 2. 44. 30  | 1. 18. 9. 40  |
|          | 1820 | 3. 10. 54. 44,0  | 5. 2. 45. 37  | 1. 18. 10. 7  |



TABLE I. *Epochs of the Mean Longitude of Mars, with the Arguments of the Equations.*

| YEARS.        | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|---------------|-------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| B. O. S. 1500 | 221         | 271          | 493         | 952        | 155         | 005          | 149           | 145         |
| B. N. S. 1600 | 946         | 573          | 520         | 374        | 972         | 339          | 632           | 192         |
| B. 1620       | 893         | 836          | 730         | 059        | 337         | 606          | 731           | 801         |
| B. 1640       | 841         | 098          | 940         | 744        | 703         | 874          | 829           | 411         |
| B. 1660       | 788         | 361          | 150         | 429        | 070         | 141          | 928           | 020         |
| B. 1680       | 736         | 623          | 360         | 113        | 436         | 408          | 027           | 630         |
| C. 1700       | 683         | 885          | 569         | 798        | 802         | 676          | 126           | 239         |
| B. 1720       | 630         | 147          | 777         | 483        | 167         | 943          | 224           | 848         |
| B. 1740       | 578         | 410          | 987         | 168        | 533         | 211          | 323           | 457         |
| B. 1760       | 525         | 672          | 197         | 853        | 900         | 478          | 422           | 067         |
| B. 1780       | 472         | 935          | 407         | 538        | 266         | 745          | 521           | 676         |
| C. 1800       | 420         | 197          | 617         | 223        | 632         | 013          | 619           | 286         |
| 1801          | 867         | 560          | 427         | 307        | 100         | 076          | 024           | 317         |
| 1802          | 314         | 923          | 237         | 391        | 568         | 140          | 428           | 347         |
| 1803          | 761         | 285          | 047         | 475        | 036         | 203          | 833           | 378         |
| B. 1804       | 208         | 649          | 857         | 560        | 504         | 266          | 238           | 408         |
| 1805          | 655         | 012          | 667         | 644        | 972         | 330          | 643           | 438         |
| 1806          | 102         | 375          | 477         | 728        | 439         | 393          | 047           | 469         |
| 1807          | 549         | 737          | 287         | 812        | 907         | 456          | 452           | 499         |
| B. 1808       | 997         | 101          | 099         | 897        | 377         | 519          | 858           | 530         |
| 1809          | 444         | 464          | 909         | 981        | 845         | 582          | 263           | 560         |
| 1810          | 891         | 827          | 719         | 065        | 312         | 646          | 667           | 591         |
| 1811          | 338         | 190          | 529         | 149        | 780         | 709          | 072           | 621         |
| B. 1812       | 787         | 554          | 341         | 234        | 250         | 773          | 478           | 652         |
| 1813          | 234         | 917          | 151         | 318        | 718         | 836          | 883           | 682         |
| 1814          | 681         | 280          | 961         | 402        | 185         | 900          | 287           | 713         |
| 1815          | 128         | 642          | 771         | 486        | 653         | 963          | 691           | 743         |
| B. 1816       | 576         | 006          | 583         | 571        | 123         | 026          | 097           | 774         |
| 1817          | 023         | 369          | 393         | 655        | 591         | 089          | 502           | 804         |
| 1818          | 470         | 732          | 203         | 739        | 059         | 153          | 906           | 835         |
| 1819          | 917         | 095          | 013         | 823        | 527         | 216          | 311           | 865         |
| B. 1820       | 366         | 459          | 825         | 908        | 997         | 280          | 717           | 896         |



## TABLES OF MARS.

TABLE II. Mean Motion of Mars for *Years*, with the Arguments of the Equations.

|        |     | Mot. Longitude.  | Mot. Aphel. | Mot. Node. |
|--------|-----|------------------|-------------|------------|
| YEARS. |     | S. D. M. S.      | D. M. S.    | M. S.      |
|        | 1   | 6. 11. 17. 9,4   | 0. 1. 7     | 0. 27      |
|        | 2   | 0. 22. 34. 18,9  | 0. 2. 14    | 0. 55      |
| B.     | 3   | 7. 3. 51. 28,3   | 0. 3. 21    | 1. 22      |
|        | 4   | 1. 15. 40. 4,4   | 0. 4. 28    | 1. 49      |
|        | 5   | 7. 26. 57. 13,8  | 0. 5. 35    | 2. 17      |
|        | 6   | 2. 8. 14. 23,3   | 0. 6. 42    | 2. 44      |
| B.     | 7   | 8. 19. 31. 32,7  | 0. 7. 49    | 3. 11      |
|        | 8   | 3. 1. 20. 8,9    | 0. 8. 56    | 3. 39      |
|        | 9   | 9. 12. 37. 18,3  | 0. 10. 3    | 4. 6       |
|        | 10  | 3. 23. 54. 27,8  | 0. 11. 10   | 4. 33      |
| B.     | 11  | 10. 5. 11. 37,2  | 0. 12. 17   | 5. 1       |
|        | 12  | 4. 17. 0. 13,3   | 0. 13. 24   | 5. 28      |
|        | 13  | 10. 28. 17. 22,7 | 0. 14. 31   | 5. 55      |
|        | 14  | 5. 9. 34. 32,2   | 0. 15. 38   | 6. 23      |
| B.     | 15  | 11. 20. 51. 41,6 | 0. 16. 45   | 6. 50      |
|        | 16  | 6. 2. 40. 17,7   | 0. 17. 52   | 7. 17      |
|        | 17  | 0. 13. 57. 27,1  | 0. 18. 59   | 7. 45      |
|        | 18  | 6. 25. 14. 36,6  | 0. 20. 6    | 8. 12      |
| B.     | 19  | 1. 6. 31. 46,0   | 0. 21. 13   | 8. 39      |
|        | 20  | 7. 18. 20. 22,2  | 0. 22. 20   | 9. 7       |
| B.     | 40  | 3. 6. 40. 44,3   | 0. 44. 40   | 18. 13     |
| B.     | 60  | 10. 25. 1. 6,5   | 1. 7. 0     | 27. 20     |
| B.     | 80  | 6. 13. 21. 28,6  | 1. 29. 20   | 36. 27     |
| B.     | 100 | 2. 1. 41. 50,7   | 1. 51. 40   | 45. 33     |
| C.     | 100 | 2. 1. 10. 24,1   | 1. 51. 40   | 45. 33     |



TABLE II. Mean Motion of Mars for *Years*, with the Arguments of the Equations.

|        |     | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|--------|-----|-------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| YEARS. |     |             |              |             |            |             |              |               |             |
|        | 1   | 447         | 363          | 810         | 084        | 468         | 063          | 405           | 030         |
|        | 2   | 894         | 726          | 620         | 168        | 935         | 127          | 809           | 061         |
| B.     | 3   | 341         | 088          | 430         | 253        | 403         | 190          | 214           | 091         |
|        | 4   | 789         | 452          | 242         | 337        | 873         | 253          | 620           | 122         |
|        | 5   | 236         | 815          | 052         | 421        | 341         | 316          | 024           | 152         |
|        | 6   | 683         | 078          | 862         | 505        | 808         | 380          | 429           | 183         |
| B.     | 7   | 130         | 540          | 672         | 590        | 276         | 443          | 834           | 213         |
|        | 8   | 579         | 905          | 484         | 674        | 746         | 507          | 240           | 244         |
|        | 9   | 026         | 267          | 294         | 758        | 214         | 570          | 645           | 274         |
|        | 10  | 473         | 630          | 104         | 842        | 681         | 634          | 049           | 305         |
| B.     | 11  | 920         | 993          | 914         | 927        | 149         | 697          | 454           | 335         |
|        | 12  | 368         | 357          | 726         | 012        | 620         | 760          | 859           | 366         |
|        | 13  | 815         | 720          | 536         | 096        | 088         | 823          | 264           | 396         |
|        | 14  | 262         | 083          | 346         | 180        | 555         | 887          | 668           | 427         |
| B.     | 15  | 709         | 445          | 156         | 264        | 023         | 950          | 073           | 457         |
|        | 16  | 158         | 810          | 968         | 348        | 493         | 014          | 479           | 488         |
|        | 17  | 605         | 173          | 778         | 432        | 961         | 077          | 884           | 518         |
|        | 18  | 052         | 536          | 588         | 516        | 428         | 141          | 289           | 549         |
| B.     | 19  | 497         | 898          | 398         | 601        | 896         | 204          | 694           | 579         |
|        | 20  | 947         | 263          | 210         | 685        | 366         | 267          | 099           | 609         |
| B.     | 40  | 895         | 525          | 420         | 370        | 732         | 535          | 198           | 219         |
| B.     | 60  | 842         | 788          | 629         | 055        | 099         | 802          | 296           | 828         |
| B.     | 80  | 790         | 050          | 839         | 740        | 465         | 069          | 395           | 438         |
| B.     | 100 | 737         | 312          | 049         | 425        | 831         | 337          | 494           | 047         |
| C.     | 100 | 736         | 311          | 047         | 424        | 830         | 337          | 493           | 047         |



TABLE III. Mean Motion of Mars for *Months*, with the Arguments of the Equations.

| Months.             | Mot. Longitude. | Mot. Aphelion. | Mot. Node. |
|---------------------|-----------------|----------------|------------|
|                     | S. D. M. S.     | SEC.           | SEC.       |
| January . . . . .   | 0. 0. 0. 0,0    | 0,0            | 0,0        |
| February . . . . .  | 0. 16. 14. 46,3 | 5,7            | 2,3        |
| March . . . . .     | 1. 0. 55. 12,7  | 10,8           | 4,4        |
| April . . . . .     | 1. 17. 9. 59,0  | 16,5           | 6,8        |
| May . . . . .       | 2. 2. 53. 18,7  | 22,0           | 9,0        |
| June . . . . .      | 2. 19. 8. 5,1   | 27,7           | 11,3       |
| July . . . . .      | 3. 4. 51. 24,7  | 33,2           | 13,6       |
| August . . . . .    | 3. 21. 6. 11,1  | 38,9           | 15,9       |
| September . . . . . | 4. 7. 20. 57,4  | 44,6           | 18,2       |
| October . . . . .   | 4. 23. 4. 17,1  | 50,1           | 20,5       |
| November . . . . .  | 5. 9. 19. 3,4   | 55,8           | 22,8       |
| December . . . . .  | 5. 25. 2. 23,1  | 61,4           | 25,1       |



TABLE III. Mean Motion of Mars for *Months*, with the Arguments of the Equations.

| Months.             | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|---------------------|-------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| January . . . . .   | 000         | 000          | 000         | 000        | 000         | 000          | 000           | 000         |
| February . . . . .  | 038         | 031          | 069         | 007        | 040         | 005          | 034           | 003         |
| March . . . . .     | 072         | 059          | 131         | 014        | 076         | 010          | 066           | 005         |
| April . . . . .     | 110         | 090          | 200         | 021        | 115         | 015          | 100           | 008         |
| May . . . . .       | 147         | 120          | 267         | 028        | 154         | 021          | 133           | 010         |
| June . . . . .      | 185         | 150          | 336         | 035        | 194         | 026          | 168           | 013         |
| July . . . . .      | 221         | 180          | 401         | 042        | 232         | 031          | 201           | 015         |
| August . . . . .    | 259         | 211          | 470         | 049        | 272         | 036          | 235           | 018         |
| September . . . . . | 298         | 242          | 539         | 056        | 311         | 042          | 269           | 020         |
| October . . . . .   | 334         | 272          | 606         | 063        | 350         | 047          | 303           | 023         |
| November . . . . .  | 372         | 302          | 674         | 070        | 389         | 053          | 337           | 026         |
| December . . . . .  | 409         | 332          | 741         | 077        | 428         | 058          | 370           | 028         |



TABLE IV. Mean Motion of Mars for *Days*, with the Arguments of the Equations.

| Days of Month. | Mot. Longitude. |     |      | Mot. Aphelion. | Mot. Node. |
|----------------|-----------------|-----|------|----------------|------------|
|                | D.              | M.  | S.   | SEC.           | SEC.       |
| 1              | 0.              | 31. | 26,7 | 0,2            | 0,1        |
| 2              | 1.              | 2.  | 53,3 | 0,4            | 0,2        |
| 3              | 1.              | 34. | 20,0 | 0,5            | 0,2        |
| 4              | 2.              | 5.  | 46,6 | 0,7            | 0,3        |
| 5              | 2.              | 37. | 13,3 | 0,9            | 0,4        |
| 6              | 3.              | 8.  | 39,9 | 1,1            | 0,5        |
| 7              | 3.              | 40. | 6,6  | 1,3            | 0,5        |
| 8              | 4.              | 11. | 33,2 | 1,5            | 0,6        |
| 9              | 4.              | 42. | 59,9 | 1,6            | 0,7        |
| 10             | 5.              | 14. | 26,6 | 1,8            | 0,8        |
| 11             | 5.              | 45. | 53,2 | 2,0            | 0,8        |
| 12             | 6.              | 17. | 19,9 | 2,2            | 0,9        |
| 13             | 6.              | 48. | 46,5 | 2,4            | 1,0        |
| 14             | 7.              | 20. | 13,2 | 2,6            | 1,1        |
| 15             | 7.              | 51. | 39,8 | 2,7            | 1,1        |
| 16             | 8.              | 23. | 6,5  | 2,9            | 1,2        |
| 17             | 8.              | 54. | 33,2 | 3,1            | 1,3        |
| 18             | 9.              | 25. | 59,8 | 3,3            | 1,4        |
| 19             | 9.              | 57. | 26,5 | 3,5            | 1,4        |
| 20             | 10.             | 28. | 53,1 | 3,7            | 1,5        |
| 21             | 11.             | 0.  | 19,8 | 3,8            | 1,6        |
| 22             | 11.             | 31. | 46,4 | 4,0            | 1,7        |
| 23             | 12.             | 3.  | 13,1 | 4,2            | 1,7        |
| 24             | 12.             | 34. | 39,7 | 4,4            | 1,8        |
| 25             | 13.             | 6.  | 6,4  | 4,6            | 1,9        |
| 26             | 13.             | 37. | 33,1 | 4,8            | 2,0        |
| 27             | 14.             | 8.  | 59,7 | 4,9            | 2,0        |
| 28             | 14.             | 40. | 26,4 | 5,1            | 2,1        |
| 29             | 15.             | 11. | 53,0 | 5,3            | 2,2        |
| 30             | 15.             | 43. | 19,7 | 5,5            | 2,3        |
| 31             | 16.             | 14. | 46,3 | 5,7            | 2,3        |

In the Months JANUARY and FEBRUARY of a Bissextile Year, subtract 1 from the given Day of the Month,



TABLE IV. Mean Motion of Mars for *Days*, with the Arguments of the Equations.

| Days of Month. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|----------------|-------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| 1              | 001         | 001          | 002         | 000        | 001         | 000          | 001           | 000         |
| 2              | 002         | 002          | 004         | 000        | 003         | 000          | 002           | 000         |
| 3              | 004         | 003          | 007         | 001        | 004         | 000          | 003           | 000         |
| 4              | 005         | 004          | 009         | 001        | 005         | 001          | 004           | 000         |
| 5              | 006         | 005          | 011         | 001        | 006         | 001          | 006           | 000         |
| 6              | 007         | 006          | 013         | 001        | 008         | 001          | 007           | 001         |
| 7              | 009         | 007          | 016         | 002        | 009         | 001          | 008           | 001         |
| 8              | 010         | 008          | 018         | 002        | 010         | 001          | 009           | 001         |
| 9              | 011         | 009          | 020         | 002        | 012         | 002          | 010           | 001         |
| 10             | 012         | 010          | 022         | 002        | 013         | 002          | 011           | 001         |
| 11             | 014         | 011          | 024         | 003        | 014         | 002          | 012           | 001         |
| 12             | 015         | 012          | 027         | 003        | 015         | 002          | 013           | 001         |
| 13             | 016         | 013          | 029         | 003        | 017         | 002          | 014           | 001         |
| 14             | 017         | 014          | 031         | 003        | 018         | 002          | 016           | 001         |
| 15             | 018         | 015          | 033         | 003        | 019         | 003          | 017           | 001         |
| 16             | 020         | 016          | 036         | 004        | 020         | 003          | 018           | 001         |
| 17             | 021         | 017          | 038         | 004        | 022         | 003          | 019           | 001         |
| 18             | 022         | 018          | 040         | 004        | 023         | 003          | 020           | 002         |
| 19             | 023         | 019          | 042         | 004        | 024         | 003          | 021           | 002         |
| 20             | 025         | 020          | 044         | 005        | 026         | 003          | 022           | 002         |
| 21             | 026         | 021          | 047         | 005        | 027         | 004          | 023           | 002         |
| 22             | 027         | 022          | 049         | 005        | 028         | 004          | 024           | 002         |
| 23             | 028         | 023          | 051         | 005        | 030         | 004          | 026           | 002         |
| 24             | 029         | 024          | 053         | 006        | 031         | 004          | 027           | 002         |
| 25             | 031         | 025          | 056         | 006        | 032         | 004          | 028           | 002         |
| 26             | 032         | 026          | 058         | 006        | 033         | 004          | 029           | 002         |
| 27             | 033         | 027          | 060         | 006        | 035         | 005          | 030           | 002         |
| 28             | 034         | 028          | 062         | 006        | 036         | 005          | 031           | 002         |
| 29             | 036         | 029          | 064         | 007        | 037         | 005          | 032           | 002         |
| 30             | 037         | 030          | 067         | 007        | 038         | 005          | 033           | 003         |
| 31             | 038         | 031          | 069         | 007        | 040         | 005          | 034           | 003         |



## TABLES OF MARS.

TABLE V. Mean Motion of Mars for *Hours*, with the Arguments of the Equations.

| Hours. | For Hours. |      |      |      |      |      |      |      |      |
|--------|------------|------|------|------|------|------|------|------|------|
|        | Mot. Long. |      | ARG. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG. |
|        | M.         | S.   | II.  | III. | IV.  | V.   | VI.  | VII. | IX.  |
| 1      | 1.         | 18,6 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 2      | 2.         | 37,2 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 3      | 3.         | 55,8 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 4      | 5.         | 14,4 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 5      | 6.         | 33,1 | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 6      | 7.         | 51,7 | 0    | 0    | 1    | 0    | 0    | 0    | 0    |
| 7      | 9.         | 10,3 | 0    | 0    | 1    | 0    | 0    | 0    | 0    |
| 8      | 10.        | 28,9 | 0    | 0    | 1    | 0    | 0    | 0    | 0    |
| 9      | 11.        | 47,5 | 0    | 0    | 1    | 0    | 0    | 0    | 0    |
| 10     | 13.        | 6,1  | 0    | 0    | 1    | 0    | 0    | 0    | 0    |
| 11     | 14.        | 24,7 | 1    | 0    | 1    | 0    | 1    | 0    | 0    |
| 12     | 15.        | 43,3 | 1    | 0    | 1    | 0    | 1    | 0    | 0    |
| 13     | 17.        | 1,9  | 1    | 1    | 1    | 0    | 1    | 0    | 0    |
| 14     | 18.        | 20,5 | 1    | 1    | 1    | 0    | 1    | 0    | 0    |
| 15     | 19.        | 39,1 | 1    | 1    | 1    | 0    | 1    | 0    | 0    |
| 16     | 20.        | 57,8 | 1    | 1    | 1    | 0    | 1    | 0    | 0    |
| 17     | 22.        | 16,4 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 18     | 23.        | 35,0 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 19     | 24.        | 53,6 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 20     | 26.        | 12,2 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 21     | 27.        | 30,8 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 22     | 28.        | 49,4 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 23     | 30.        | 8,0  | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 24     | 31.        | 26,7 | 1    | 1    | 2    | 0    | 1    | 0    | 0    |
| 200    | 810        | 100  | 820  | 830  | 840  | 850  | 860  | 870  | 880  |
| 200    | 910        | 100  | 920  | 930  | 940  | 950  | 960  | 970  | 980  |
| 200    | 010        | 200  | 220  | 230  | 240  | 250  | 260  | 270  | 280  |
| 200    | 110        | 200  | 230  | 240  | 250  | 260  | 270  | 280  | 290  |
| 200    | 210        | 200  | 240  | 250  | 260  | 270  | 280  | 290  | 300  |
| 200    | 310        | 200  | 250  | 260  | 270  | 280  | 290  | 300  | 310  |

In the Month January and February of 1874 Mars was at the given Day of the Month.



TABLE VI. Mean Motion of Mars for *Minutes* and *Seconds*.

| For Minutes. |                     |      |                     | For Seconds. |                   |
|--------------|---------------------|------|---------------------|--------------|-------------------|
| Min.         | Mot. Long.<br>M. s. | Min. | Mot. Long.<br>M. s. | Sec.         | Mot. Lon.<br>SEC. |
| 1            | 0. 1,3              | 31   | 0. 40,6             | 1            | 0,02              |
| 2            | 0. 2,6              | 32   | 0. 41,9             | 2            | 0,04              |
| 3            | 0. 3,9              | 33   | 0. 43,2             | 3            | 0,07              |
| 4            | 0. 5,2              | 34   | 0. 44,5             | 4            | 0,09              |
| 5            | 0. 6,6              | 35   | 0. 45,9             | 5            | 0,11              |
| 6            | 0. 7,9              | 36   | 0. 47,2             | 6            | 0,13              |
| 7            | 0. 9,2              | 37   | 0. 48,5             | 7            | 0,15              |
| 8            | 0. 10,5             | 38   | 0. 49,8             | 8            | 0,17              |
| 9            | 0. 11,8             | 39   | 0. 51,1             | 9            | 0,20              |
| 10           | 0. 13,1             | 40   | 0. 52,4             | 10           | 0,22              |
| 11           | 0. 14,4             | 41   | 0. 53,7             | 20           | 0,44              |
| 12           | 0. 15,7             | 42   | 0. 55,0             | 30           | 0,65              |
| 13           | 0. 17,0             | 43   | 0. 56,3             | 40           | 0,87              |
| 14           | 0. 18,3             | 44   | 0. 57,6             | 50           | 1,09              |
| 15           | 0. 19,7             | 45   | 0. 59,0             |              |                   |
| 16           | 0. 21,0             | 46   | 1. 0,3              |              |                   |
| 17           | 0. 22,3             | 47   | 1. 1,6              |              |                   |
| 18           | 0. 23,6             | 48   | 1. 2,9              |              |                   |
| 19           | 0. 24,9             | 49   | 1. 4,2              |              |                   |
| 20           | 0. 26,2             | 50   | 1. 5,5              |              |                   |
| 21           | 0. 27,5             | 51   | 1. 6,8              |              |                   |
| 22           | 0. 28,8             | 52   | 1. 8,1              |              |                   |
| 23           | 0. 30,1             | 53   | 1. 9,4              |              |                   |
| 24           | 0. 31,4             | 54   | 1. 10,7             |              |                   |
| 25           | 0. 32,8             | 55   | 1. 12,1             |              |                   |
| 26           | 0. 34,1             | 56   | 1. 13,4             |              |                   |
| 27           | 0. 35,4             | 57   | 1. 14,7             |              |                   |
| 28           | 0. 36,7             | 58   | 1. 16,0             |              |                   |
| 29           | 0. 38,0             | 59   | 1. 17,3             |              |                   |
| 30           | 0. 39,3             | 60   | 1. 18,6             |              |                   |



## TABLES OF MARS.

TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg. | Sig. O. —  |     |      | Diff. | Var. |  | Sig. I. — |      |    | Diff. | Var. |  | Sig. II. — |      |    | Diff. | Var. |  | Deg.   |
|------|------------|-----|------|-------|------|--|-----------|------|----|-------|------|--|------------|------|----|-------|------|--|--------|
|      | D.         | M.  | S.   | SEC.  | SEC. |  | D.        | M.   | S. | SEC.  | SEC. |  | D.         | M.   | S. | SEC.  | SEC. |  |        |
| 0. 0 | 0.         | 0.  | 0,0  | 100,1 | 0,0  |  | 4. 50.    | 39,5 |    | 90,3  | 15,2 |  | 8. 42.     | 26,8 |    | 60,9  | 28,2 |  | 30. 0  |
| 10   | 0.         | 1.  | 40,2 | 100,1 | 0,1  |  | 4. 52.    | 9,8  |    | 90,2  | 15,2 |  | 8. 43.     | 27,7 |    | 60,6  | 28,2 |  | 29. 50 |
| 20   | 0.         | 3.  | 20,3 | 100,1 | 0,2  |  | 4. 53.    | 40,0 |    | 90,1  | 15,3 |  | 8. 44.     | 28,3 |    | 60,4  | 28,3 |  | 40     |
| 30   | 0.         | 5.  | 0,4  | 100,2 | 0,2  |  | 4. 55.    | 10,1 |    | 90,0  | 15,4 |  | 8. 45.     | 28,7 |    | 60,1  | 28,4 |  | 30     |
| 40   | 0.         | 6.  | 40,6 | 100,1 | 0,3  |  | 4. 56.    | 40,1 |    | 89,8  | 15,5 |  | 8. 46.     | 28,8 |    | 59,9  | 28,4 |  | 20     |
| 50   | 0.         | 8.  | 20,7 | 100,1 | 0,4  |  | 4. 58.    | 9,9  |    | 89,8  | 15,6 |  | 8. 47.     | 28,7 |    | 59,6  | 28,5 |  | 10     |
| 1. 0 | 0.         | 10. | 0,8  | 100,1 | 0,5  |  | 4. 59.    | 39,7 |    | 89,7  | 15,7 |  | 8. 48.     | 28,3 |    | 59,4  | 28,6 |  | 29. 0  |
| 10   | 0.         | 11. | 40,9 | 100,1 | 0,6  |  | 5. 1.     | 9,4  |    | 89,5  | 15,7 |  | 8. 49.     | 27,7 |    | 59,2  | 28,6 |  | 28. 50 |
| 20   | 0.         | 13. | 21,0 | 100,1 | 0,6  |  | 5. 2.     | 38,9 |    | 89,4  | 15,8 |  | 8. 50.     | 26,9 |    | 59,0  | 28,7 |  | 40     |
| 30   | 0.         | 15. | 1,1  | 100,1 | 0,7  |  | 5. 4.     | 8,3  |    | 89,3  | 15,9 |  | 8. 51.     | 25,9 |    | 58,8  | 28,8 |  | 30     |
| 40   | 0.         | 16. | 41,2 | 100,2 | 0,8  |  | 5. 5.     | 37,6 |    | 89,2  | 16,0 |  | 8. 52.     | 24,7 |    | 58,6  | 28,8 |  | 20     |
| 50   | 0.         | 18. | 21,4 | 100,1 | 0,9  |  | 5. 7.     | 6,8  |    | 89,1  | 16,1 |  | 8. 53.     | 23,3 |    | 58,4  | 28,9 |  | 10     |
| 2. 0 | 0.         | 20. | 1,5  | 100,0 | 1,0  |  | 5. 8.     | 35,9 |    | 89,0  | 16,2 |  | 8. 54.     | 21,7 |    | 58,2  | 28,9 |  | 28. 0  |
| 10   | 0.         | 21. | 41,5 | 100,1 | 1,0  |  | 5. 10.    | 4,9  |    | 88,9  | 16,2 |  | 8. 55.     | 19,9 |    | 58,0  | 29,0 |  | 27. 50 |
| 20   | 0.         | 23. | 21,6 | 100,1 | 1,1  |  | 5. 11.    | 33,8 |    | 88,7  | 16,3 |  | 8. 56.     | 17,9 |    | 57,7  | 29,1 |  | 40     |
| 30   | 0.         | 25. | 1,7  | 100,0 | 1,2  |  | 5. 13.    | 2,5  |    | 88,6  | 16,4 |  | 8. 57.     | 15,6 |    | 57,5  | 29,1 |  | 30     |
| 40   | 0.         | 26. | 41,7 | 100,1 | 1,3  |  | 5. 14.    | 31,1 |    | 88,4  | 16,4 |  | 8. 58.     | 13,1 |    | 57,2  | 29,2 |  | 20     |
| 50   | 0.         | 28. | 21,8 | 100,1 | 1,4  |  | 5. 15.    | 59,5 |    | 88,2  | 16,5 |  | 8. 59.     | 10,3 |    | 56,9  | 29,2 |  | 10     |
| 3. 0 | 0.         | 30. | 1,9  | 100,0 | 1,5  |  | 5. 17.    | 27,7 |    | 88,1  | 16,6 |  | 9. 0.      | 7,2  |    | 56,7  | 29,3 |  | 27. 0  |
| 10   | 0.         | 31. | 41,9 | 100,0 | 1,5  |  | 5. 18.    | 55,8 |    | 88,1  | 16,6 |  | 9. 1.      | 3,9  |    | 56,5  | 29,4 |  | 26. 50 |
| 20   | 0.         | 33. | 21,9 | 100,1 | 1,6  |  | 5. 20.    | 23,9 |    | 88,0  | 16,7 |  | 9. 2.      | 0,4  |    | 56,3  | 29,4 |  | 40     |
| 30   | 0.         | 35. | 2,0  | 100,0 | 1,7  |  | 5. 21.    | 51,9 |    | 87,9  | 16,8 |  | 9. 2.      | 56,7 |    | 56,1  | 29,5 |  | 30     |
| 40   | 0.         | 36. | 42,0 | 100,0 | 1,8  |  | 5. 23.    | 19,8 |    | 87,8  | 16,9 |  | 9. 3.      | 52,8 |    | 55,9  | 29,5 |  | 20     |
| 50   | 0.         | 38. | 22,0 | 100,1 | 1,9  |  | 5. 24.    | 47,6 |    | 87,6  | 17,0 |  | 9. 4.      | 48,7 |    | 55,6  | 29,6 |  | 10     |
| 4. 0 | 0.         | 40. | 2,1  | 100,0 | 2,0  |  | 5. 26.    | 15,2 |    | 87,5  | 17,1 |  | 9. 5.      | 44,3 |    | 55,4  | 29,6 |  | 26. 0  |
| 10   | 0.         | 41. | 42,1 | 99,9  | 2,1  |  | 5. 27.    | 42,7 |    | 87,4  | 17,1 |  | 9. 6.      | 39,7 |    | 55,2  | 29,7 |  | 25. 50 |
| 20   | 0.         | 43. | 22,0 | 99,9  | 2,2  |  | 5. 29.    | 10,1 |    | 87,3  | 17,2 |  | 9. 7.      | 34,9 |    | 54,9  | 29,8 |  | 40     |
| 30   | 0.         | 45. | 1,9  | 99,9  | 2,3  |  | 5. 30.    | 37,4 |    | 87,1  | 17,3 |  | 9. 8.      | 29,8 |    | 54,7  | 29,8 |  | 30     |
| 40   | 0.         | 46. | 41,8 | 100,0 | 2,4  |  | 5. 32.    | 4,5  |    | 87,0  | 17,4 |  | 9. 9.      | 24,5 |    | 54,5  | 29,9 |  | 20     |
| 50   | 0.         | 48. | 21,8 | 99,9  | 2,5  |  | 5. 33.    | 31,5 |    | 86,9  | 17,5 |  | 9. 10.     | 19,0 |    | 54,3  | 30,0 |  | 10     |
| 5. 0 | 0.         | 50. | 1,7  | 99,8  | 2,6  |  | 5. 34.    | 58,4 |    | 86,8  | 17,6 |  | 9. 11.     | 13,3 |    | 54,1  | 30,0 |  | 25. 0  |
| 10   | 0.         | 51. | 41,5 | 99,9  | 2,6  |  | 5. 36.    | 25,2 |    | 86,7  | 17,6 |  | 9. 12.     | 7,4  |    | 53,8  | 30,1 |  | 24. 50 |
| 20   | 0.         | 53. | 21,4 | 99,9  | 2,7  |  | 5. 37.    | 51,9 |    | 86,5  | 17,7 |  | 9. 13.     | 1,2  |    | 53,5  | 30,1 |  | 40     |
| 30   | 0.         | 55. | 1,3  | 99,8  | 2,8  |  | 5. 39.    | 18,4 |    | 86,3  | 17,8 |  | 9. 13.     | 54,7 |    | 53,2  | 30,2 |  | 30     |
| 40   | 0.         | 56. | 41,1 | 99,8  | 2,9  |  | 5. 40.    | 44,7 |    | 86,2  | 17,9 |  | 9. 14.     | 47,9 |    | 53,0  | 30,2 |  | 20     |
| 50   | 0.         | 58. | 20,9 | 99,8  | 3,0  |  | 5. 42.    | 10,9 |    | 86,1  | 18,0 |  | 9. 15.     | 40,9 |    | 52,7  | 30,3 |  | 10     |
| 6. 0 | 1.         | 0.  | 0,7  |       | 3,1  |  | 5. 43.    | 37,0 |    |       | 18,1 |  | 9. 16.     | 33,6 |    |       | 30,3 |  | 24. 0  |
|      | Sig. XI. + |     |      |       |      |  | Sig. X. + |      |    |       |      |  | Sig. IX. + |      |    |       |      |  |        |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg. | Sig. III.—   |     |      | Diff. | Var. |  | Sig. IV.—   |     |      | Diff. | Var. |  | Sig. V.—   |     |      | Diff. | Var. |  | Deg.   |
|------|--------------|-----|------|-------|------|--|-------------|-----|------|-------|------|--|------------|-----|------|-------|------|--|--------|
|      | D.           | M.  | S.   |       |      |  | D.          | M.  | S.   |       |      |  | D.         | M.  | S.   |       |      |  |        |
| 0. 0 | 10.          | 37. | 16,4 |       |      |  | 9.          | 46. | 26,6 |       |      |  | 5.         | 55. | 36,7 |       |      |  | 30. 0  |
| 10   | 10.          | 37. | 29,0 | 12,6  | 36,4 |  | 9.          | 45. | 38,6 | 48,0  | 35,6 |  | 5.         | 53. | 53,4 | 103,3 | 22,6 |  | 29. 50 |
| 20   | 10.          | 37. | 41,3 | 12,3  | 36,4 |  | 9.          | 44. | 50,3 | 48,3  | 35,5 |  | 5.         | 52. | 9,9  | 103,5 | 22,5 |  | 40     |
| 30   | 10.          | 37. | 53,3 | 12,0  | 36,4 |  | 9.          | 44. | 1,7  | 48,6  | 35,5 |  | 5.         | 50. | 26,2 | 103,7 | 22,4 |  | 30     |
| 40   | 10.          | 38. | 5,0  | 11,7  | 36,4 |  | 9.          | 43. | 12,8 | 48,9  | 35,5 |  | 5.         | 48. | 42,3 | 103,9 | 22,3 |  | 20     |
| 50   | 10.          | 38. | 16,3 | 11,3  | 36,4 |  | 9.          | 42. | 23,6 | 49,2  | 35,4 |  | 5.         | 46. | 58,1 | 104,2 | 22,2 |  | 10     |
|      |              |     |      | 11,1  |      |  |             |     |      | 49,5  |      |  |            |     |      | 104,4 |      |  |        |
| 1. 0 | 10.          | 38. | 27,4 | 10,8  | 36,5 |  | 9.          | 41. | 34,1 | 49,9  | 35,3 |  | 5.         | 45. | 13,7 | 104,7 | 22,1 |  | 29. 0  |
| 10   | 10.          | 38. | 38,2 | 10,4  | 36,5 |  | 9.          | 40. | 44,2 | 50,3  | 35,3 |  | 5.         | 43. | 29,0 | 104,9 | 21,9 |  | 28. 50 |
| 20   | 10.          | 38. | 48,6 | 10,1  | 36,5 |  | 9.          | 39. | 53,9 | 50,7  | 35,2 |  | 5.         | 41. | 44,0 | 105,0 | 21,8 |  | 40     |
| 30   | 10.          | 38. | 58,7 | 9,8   | 36,5 |  | 9.          | 39. | 3,2  | 51,1  | 35,2 |  | 5.         | 39. | 58,8 | 105,2 | 21,7 |  | 30     |
| 40   | 10.          | 39. | 8,5  | 9,5   | 36,5 |  | 9.          | 38. | 12,1 | 51,4  | 35,1 |  | 5.         | 38. | 13,4 | 105,4 | 21,6 |  | 20     |
| 50   | 10.          | 39. | 18,0 | 9,2   | 36,5 |  | 9.          | 37. | 20,7 | 51,7  | 35,1 |  | 5.         | 36. | 27,7 | 105,7 | 21,5 |  | 10     |
|      |              |     |      | 8,9   |      |  |             |     |      | 52,0  |      |  |            |     |      | 106,0 |      |  |        |
| 2. 0 | 10.          | 39. | 27,2 | 8,9   | 36,6 |  | 9.          | 36. | 29,0 | 52,4  | 35,0 |  | 5.         | 34. | 41,7 | 106,2 | 21,4 |  | 28. 0  |
| 10   | 10.          | 39. | 36,1 | 8,6   | 36,6 |  | 9.          | 35. | 37,0 | 52,7  | 34,9 |  | 5.         | 32. | 55,5 | 106,4 | 21,3 |  | 27. 50 |
| 20   | 10.          | 39. | 44,7 | 8,3   | 36,6 |  | 9.          | 34. | 44,6 | 53,0  | 34,9 |  | 5.         | 31. | 9,1  | 106,6 | 21,2 |  | 40     |
| 30   | 10.          | 39. | 53,0 | 7,9   | 36,6 |  | 9.          | 33. | 51,9 | 53,4  | 34,8 |  | 5.         | 29. | 22,5 | 106,8 | 21,1 |  | 30     |
| 40   | 10.          | 40. | 0,9  | 7,5   | 36,6 |  | 9.          | 32. | 58,9 | 53,7  |      |  | 5.         | 27. | 35,7 | 106,9 | 21,0 |  | 20     |
| 50   | 10.          | 40. | 8,4  | 7,2   | 36,6 |  | 9.          | 32. | 5,5  | 54,0  | 34,8 |  | 5.         | 25. | 48,8 | 107,1 | 20,9 |  | 10     |
|      |              |     |      | 6,9   |      |  |             |     |      | 54,4  |      |  |            |     |      | 107,4 |      |  |        |
| 3. 0 | 10.          | 40. | 15,6 | 6,9   | 36,7 |  | 9.          | 31. | 11,8 | 54,7  | 34,7 |  | 5.         | 24. | 1,7  | 107,7 | 20,8 |  | 27. 0  |
| 10   | 10.          | 40. | 22,5 | 6,6   | 36,7 |  | 9.          | 30. | 17,8 | 55,1  | 34,7 |  | 5.         | 22. | 14,3 | 107,9 | 20,7 |  | 26. 50 |
| 20   | 10.          | 40. | 29,1 | 6,3   | 36,7 |  | 9.          | 29. | 23,4 | 55,5  | 34,7 |  | 5.         | 20. | 26,6 | 108,2 | 20,5 |  | 40     |
| 30   | 10.          | 40. | 35,4 | 6,0   | 36,7 |  | 9.          | 28. | 28,7 | 55,8  | 34,6 |  | 5.         | 18. | 38,7 | 108,4 | 20,4 |  | 30     |
| 40   | 10.          | 40. | 41,4 | 5,7   | 36,7 |  | 9.          | 27. | 33,6 | 56,1  | 34,6 |  | 5.         | 16. | 50,5 | 108,6 | 20,3 |  | 20     |
| 50   | 10.          | 40. | 47,1 | 5,5   | 36,7 |  | 9.          | 26. | 38,1 | 56,5  | 34,6 |  | 5.         | 15. | 2,1  | 108,8 | 20,2 |  | 10     |
|      |              |     |      | 5,1   |      |  |             |     |      | 56,8  |      |  |            |     |      | 109,0 |      |  |        |
| 4. 0 | 10.          | 40. | 52,6 | 5,1   | 36,8 |  | 9.          | 25. | 42,3 | 57,1  | 34,6 |  | 5.         | 13. | 13,5 | 109,2 | 20,1 |  | 26. 0  |
| 10   | 10.          | 40. | 57,7 | 4,8   | 36,8 |  | 9.          | 24. | 46,2 | 57,4  | 34,6 |  | 5.         | 11. | 24,7 | 109,4 | 20,0 |  | 25. 50 |
| 20   | 10.          | 41. | 2,5  | 4,4   | 36,8 |  | 9.          | 23. | 49,7 | 57,8  | 34,5 |  | 5.         | 9.  | 35,7 | 109,6 | 19,8 |  | 40     |
| 30   | 10.          | 41. | 6,9  | 4,1   | 36,8 |  | 9.          | 22. | 52,9 | 58,1  | 34,5 |  | 5.         | 7.  | 46,5 | 109,8 | 19,7 |  | 30     |
| 40   | 10.          | 41. | 11,0 | 3,8   | 36,8 |  | 9.          | 21. | 55,8 | 58,5  | 34,4 |  | 5.         | 5.  | 57,0 | 110,0 | 19,6 |  | 20     |
| 50   | 10.          | 41. | 14,8 | 3,4   | 36,8 |  | 9.          | 20. | 58,4 | 58,8  | 34,4 |  | 5.         | 4.  | 7,3  | 110,2 | 19,5 |  | 10     |
|      |              |     |      | 3,1   |      |  |             |     |      | 59,1  |      |  |            |     |      | 110,4 |      |  |        |
| 5. 0 | 10.          | 41. | 18,2 | 3,1   | 36,9 |  | 9.          | 20. | 0,6  | 59,5  | 34,3 |  | 5.         | 2.  | 17,3 | 110,6 | 19,4 |  | 25. 0  |
| 10   | 10.          | 41. | 21,3 | 2,8   | 36,9 |  | 9.          | 19. | 2,5  | 59,9  | 34,3 |  | 5.         | 0.  | 27,2 | 110,8 | 19,3 |  | 24. 50 |
| 20   | 10.          | 41. | 24,1 | 2,5   | 36,9 |  | 9.          | 18. | 4,0  | 59,2  | 34,2 |  | 4.         | 58. | 36,9 | 111,0 | 19,1 |  | 40     |
| 30   | 10.          | 41. | 26,6 | 2,1   | 36,9 |  | 9.          | 17. | 5,2  | 59,6  | 34,2 |  | 4.         | 56. | 46,4 | 111,2 | 19,0 |  | 30     |
| 40   | 10.          | 41. | 28,7 | 1,8   | 36,9 |  | 9.          | 16. | 6,0  | 59,9  | 34,1 |  | 4.         | 54. | 55,7 | 111,4 | 18,9 |  | 20     |
| 50   | 10.          | 41. | 30,5 | 1,5   | 36,9 |  | 9.          | 15. | 6,4  |       | 34,1 |  | 4.         | 53. | 4,8  | 111,6 | 18,8 |  | 10     |
| 6. 0 | 10.          | 41. | 32,0 |       | 37,0 |  | 9.          | 14. | 6,5  |       | 34,0 |  | 4.         | 51. | 13,7 | 111,8 | 18,7 |  | 24. 0  |
|      |              |     |      |       |      |  |             |     |      |       |      |  |            |     |      |       |      |  |        |
|      | Sig. VIII. + |     |      |       |      |  | Sig. VII. + |     |      |       |      |  | Sig. VI. + |     |      |       |      |  |        |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. O. —  |     |      | Diff. | Var. | Sig. I.—    | Diff. | Var. | Sig. II. —  | Diff.      | Var. | Deg.   |      |    |
|-------|------------|-----|------|-------|------|-------------|-------|------|-------------|------------|------|--------|------|----|
|       | D.         | M.  | S.   | SEC.  | SEC. |             | D.    | M.   |             | S.         | SEC. |        | SEC. | D. |
| 6. 0  | I.         | 0.  | 0,7  |       | 3,1  | 5. 43. 37,0 | 86,0  | 18,1 | 9. 16. 33,6 |            | 30,3 | 24. 0  |      |    |
| 10    | I.         | 1.  | 40,4 | 99,7  | 3,1  | 5. 45. 3,0  | 85,9  | 18,1 | 9. 17. 26,1 | 52,5       | 30,3 | 23. 50 |      |    |
| 20    | I.         | 3.  | 20,1 | 99,6  | 3,2  | 5. 46. 28,9 | 85,7  | 18,2 | 9. 18. 18,4 | 52,3       | 30,4 | 40     |      |    |
| 30    | I.         | 4.  | 59,7 | 99,7  | 3,3  | 5. 47. 54,6 | 85,6  | 18,3 | 9. 19. 10,5 | 52,1       | 30,4 | 30     |      |    |
| 40    | I.         | 6.  | 39,4 | 99,7  | 3,4  | 5. 49. 20,2 | 85,4  | 18,3 | 9. 20. 2,4  | 51,9       | 30,5 | 20     |      |    |
| 50    | I.         | 8.  | 19,1 | 99,6  | 3,5  | 5. 50. 45,6 | 85,2  | 18,4 | 9. 20. 54,1 | 51,7       | 30,6 | 10     |      |    |
| 7. 0  | I.         | 9.  | 58,7 | 99,6  | 3,6  | 5. 52. 10,8 | 85,1  | 18,5 | 9. 21. 45,5 | 51,4       | 30,7 | 23. 0  |      |    |
| 10    | I.         | 11. | 38,3 | 99,6  | 3,6  | 5. 53. 35,9 | 85,0  | 18,5 | 9. 22. 36,7 | 51,2       | 30,7 | 22. 50 |      |    |
| 20    | I.         | 13. | 17,9 | 99,6  | 3,7  | 5. 55. 0,9  | 84,9  | 18,6 | 9. 23. 27,6 | 50,9       | 30,8 | 40     |      |    |
| 30    | I.         | 14. | 57,5 | 99,5  | 3,8  | 5. 56. 25,8 | 84,8  | 18,7 | 9. 24. 18,3 | 50,7       | 30,8 | 30     |      |    |
| 40    | I.         | 16. | 37,0 | 99,5  | 3,9  | 5. 57. 50,6 | 84,7  | 18,8 | 9. 25. 8,7  | 50,4       | 30,9 | 20     |      |    |
| 50    | I.         | 18. | 16,5 | 99,5  | 4,0  | 5. 59. 15,3 | 84,6  | 18,9 | 9. 25. 58,8 | 50,1       | 30,9 | 10     |      |    |
| 8. 0  | I.         | 19. | 56,0 | 99,4  | 4,1  | 6. 0. 39,9  | 84,4  | 19,0 | 9. 26. 48,6 | 49,8       | 31,0 | 22. 0  |      |    |
| 10    | I.         | 21. | 35,4 | 99,4  | 4,1  | 6. 2. 4,3   | 84,2  | 19,0 | 9. 27. 38,2 | 49,6       | 31,0 | 21. 50 |      |    |
| 20    | I.         | 23. | 14,8 | 99,4  | 4,2  | 6. 3. 28,5  | 84,0  | 19,1 | 9. 28. 27,6 | 49,4       | 31,1 | 40     |      |    |
| 30    | I.         | 24. | 54,2 | 99,4  | 4,3  | 6. 4. 52,5  | 83,9  | 19,2 | 9. 29. 16,8 | 49,2       | 31,1 | 30     |      |    |
| 40    | I.         | 26. | 33,5 | 99,3  | 4,4  | 6. 6. 16,4  | 83,8  | 19,3 | 9. 30. 5,7  | 48,9       | 31,2 | 20     |      |    |
| 50    | I.         | 28. | 12,8 | 99,3  | 4,5  | 6. 7. 40,2  | 83,6  | 19,3 | 9. 30. 54,4 | 48,7       | 31,2 | 10     |      |    |
| 9. 0  | I.         | 29. | 52,2 | 99,4  |      |             |       |      |             |            |      |        |      |    |
| 10    | I.         | 31. | 31,4 | 99,2  | 4,6  | 6. 9. 3,8   | 83,5  | 19,4 | 9. 31. 42,8 | 48,4       | 31,3 | 21. 0  |      |    |
| 20    | I.         | 33. | 10,6 | 99,2  | 4,7  | 6. 10. 27,3 | 83,4  | 19,5 | 9. 32. 31,0 | 48,2       | 31,3 | 20. 50 |      |    |
| 30    | I.         | 33. | 10,6 | 99,2  | 4,8  | 6. 11. 50,7 | 83,4  | 19,6 | 9. 32. 31,0 | 48,0       | 31,3 | 20. 50 |      |    |
| 40    | I.         | 34. | 49,8 | 99,2  | 4,8  | 6. 13. 13,9 | 83,2  | 19,6 | 9. 33. 19,0 | 48,0       | 31,4 | 40     |      |    |
| 50    | I.         | 36. | 29,0 | 99,2  | 4,9  | 6. 14. 37,0 | 83,2  | 19,6 | 9. 34. 6,7  | 47,7       | 31,4 | 30     |      |    |
|       | I.         | 36. | 29,0 | 99,2  | 5,0  | 6. 16. 0,0  | 83,1  | 19,7 | 9. 34. 54,1 | 47,4       | 31,4 | 30     |      |    |
|       | I.         | 38. | 8,1  | 99,1  | 5,1  |             | 83,0  | 19,7 | 9. 35. 41,2 | 47,1       | 31,5 | 20     |      |    |
|       |            |     |      | 99,1  | 5,1  |             |       | 19,8 |             | 47,1       | 31,5 | 10     |      |    |
| 10. 0 | I.         | 39. | 47,2 | 99,1  |      |             |       |      |             |            |      |        |      |    |
| 10    | I.         | 41. | 26,3 | 99,1  | 5,2  | 6. 17. 22,8 | 82,8  | 19,8 | 9. 36. 28,1 | 46,9       | 31,5 | 21. 0  |      |    |
| 20    | I.         | 41. | 26,3 | 99,0  | 5,2  | 6. 18. 45,4 | 82,6  | 19,9 | 9. 37. 14,7 | 46,6       | 31,6 | 20. 0  |      |    |
| 30    | I.         | 43. | 5,3  | 98,9  | 5,3  | 6. 20. 7,9  | 82,5  | 19,9 | 9. 38. 1,1  | 46,4       | 31,6 | 19. 50 |      |    |
| 40    | I.         | 44. | 44,2 | 98,9  | 5,3  | 6. 21. 30,3 | 82,4  | 20,0 | 9. 38. 1,1  | 46,2       | 31,7 | 40     |      |    |
| 50    | I.         | 46. | 23,1 | 98,9  | 5,4  | 6. 22. 52,5 | 82,2  | 20,1 | 9. 38. 47,3 | 46,2       | 31,7 | 30     |      |    |
|       | I.         | 48. | 2,0  | 98,8  | 5,5  | 6. 24. 14,5 | 82,0  | 20,2 | 9. 39. 33,2 | 45,9       | 31,7 | 30     |      |    |
|       |            |     |      | 98,8  | 5,5  |             | 81,8  | 20,2 | 9. 40. 18,9 | 45,7       | 31,8 | 20     |      |    |
| 11. 0 | I.         | 49. | 40,8 | 98,8  |      |             |       |      |             |            |      |        |      |    |
| 10    | I.         | 51. | 19,6 | 98,8  | 5,6  | 6. 25. 36,3 | 81,7  | 20,3 | 9. 41. 4,4  | 45,5       | 31,8 | 10     |      |    |
| 20    | I.         | 51. | 19,6 | 98,8  | 5,6  | 6. 26. 58,0 | 81,6  | 20,4 | 9. 41. 49,6 | 45,2       | 31,9 | 19. 0  |      |    |
| 30    | I.         | 52. | 58,4 | 98,8  | 5,7  | 6. 28. 19,6 | 81,5  | 20,5 | 9. 42. 34,5 | 44,9       | 31,9 | 18. 50 |      |    |
| 40    | I.         | 54. | 37,2 | 98,7  | 5,8  | 6. 29. 41,1 | 81,4  | 20,5 | 9. 43. 19,1 | 44,6       | 32,0 | 40     |      |    |
| 50    | I.         | 56. | 15,9 | 98,7  | 5,9  | 6. 31. 2,5  | 81,2  | 20,6 | 9. 44. 3,5  | 44,4       | 32,0 | 30     |      |    |
|       | I.         | 57. | 54,6 | 98,6  | 6,0  | 6. 32. 23,7 | 81,0  | 20,7 | 9. 44. 47,7 | 43,2       | 32,1 | 20     |      |    |
| 12. 0 | I.         | 59. | 33,2 |       | 6,1  | 6. 33. 44,8 | 81,0  | 20,8 | 9. 45. 31,6 | 43,9       | 32,1 | 10     |      |    |
|       |            |     |      |       |      |             |       |      |             |            |      |        |      |    |
|       | Sig. XI. + |     |      |       |      | Sig. X. +   |       |      |             | Sig. IX. + |      |        |      |    |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. III. —  |     |      | Diff. | Var. — | Sig. IV. — |             |      | Diff. | Var. — | Sig. V. — |            |      | Diff. | Var. — | Deg.   |
|-------|--------------|-----|------|-------|--------|------------|-------------|------|-------|--------|-----------|------------|------|-------|--------|--------|
|       | D.           | M.  | S.   |       |        | D.         | M.          | S.   |       |        | D.        | M.         | S.   |       |        |        |
| 6. 0  | 10.          | 41. | 32,0 |       | 37,0   | 9.         | 14.         | 6,5  | 60,2  | 34,0   | 4.        | 51.        | 13,7 | 111,3 | 18,7   | 24. 0  |
| 10    | 10.          | 41. | 33,2 | 1,2   | 37,0   | 9.         | 13.         | 6,3  | 60,6  | 34,0   | 4.        | 49.        | 22,4 | 111,3 | 18,6   | 23. 50 |
| 20    | 10.          | 41. | 34,1 | 0,9   | 37,0   | 9.         | 12.         | 5,7  | 60,9  | 33,9   | 4.        | 47.        | 30,9 | 111,5 | 18,5   | 40     |
| 30    | 10.          | 41. | 34,6 | 0,5   | 37,0   | 9.         | 11.         | 4,8  | 61,2  | 33,9   | 4.        | 45.        | 39,2 | 111,7 | 18,4   | 30     |
| 40    | 10.          | 41. | 34,8 | 0,2   | 37,0   | 9.         | 10.         | 3,6  | 61,5  | 33,8   | 4.        | 43.        | 47,3 | 111,9 | 18,3   | 20     |
| 50    | 10.          | 41. | 34,6 | 0,2   | 37,0   | 9.         | 9.          | 2,1  | 61,8  | 33,8   | 4.        | 41.        | 55,1 | 112,2 | 18,2   | 10     |
|       |              |     |      | 0,5   |        |            |             |      |       |        |           |            |      | 112,4 |        |        |
| 7. 0  | 10.          | 41. | 34,1 | 0,8   | 37,1   | 9.         | 8.          | 0,3  | 62,2  | 33,7   | 4.        | 40.        | 2,7  | 112,5 | 18,0   | 23. 0  |
| 10    | 10.          | 41. | 33,3 | 1,1   | 37,1   | 9.         | 6.          | 58,1 | 62,5  | 33,7   | 4.        | 38.        | 10,2 | 112,5 | 17,9   | 22. 50 |
| 20    | 10.          | 41. | 32,2 | 1,4   | 37,1   | 9.         | 5.          | 55,6 | 62,9  | 33,6   | 4.        | 36.        | 17,5 | 112,7 | 17,8   | 40     |
| 30    | 10.          | 41. | 30,8 | 1,7   | 37,1   | 9.         | 4.          | 52,7 | 63,3  | 33,6   | 4.        | 34.        | 24,6 | 112,9 | 17,7   | 30     |
| 40    | 10.          | 41. | 29,1 | 2,1   | 37,1   | 9.         | 3.          | 49,4 | 63,6  | 33,5   | 4.        | 32.        | 31,5 | 113,1 | 17,6   | 20     |
| 50    | 10.          | 41. | 27,0 | 2,4   | 37,1   | 9.         | 2.          | 45,8 | 63,8  | 33,4   | 4.        | 30.        | 38,2 | 113,3 | 17,5   | 10     |
|       |              |     |      |       |        |            |             |      |       |        |           |            |      | 113,6 |        |        |
| 8. 0  | 10.          | 41. | 24,6 | 2,7   | 37,2   | 9.         | 1.          | 42,0 | 64,2  | 33,3   | 4.        | 28.        | 44,6 | 113,7 | 17,3   | 22. 0  |
| 10    | 10.          | 41. | 21,9 | 3,0   | 37,2   | 9.         | 0.          | 37,8 | 64,5  | 33,3   | 4.        | 26.        | 50,9 | 113,9 | 17,2   | 21. 50 |
| 20    | 10.          | 41. | 18,9 | 3,4   | 37,2   | 8.         | 59.         | 33,3 | 64,8  | 33,2   | 4.        | 24.        | 57,0 | 114,0 | 17,1   | 40     |
| 30    | 10.          | 41. | 15,5 | 3,8   | 37,2   | 8.         | 58.         | 28,5 | 65,2  | 33,2   | 4.        | 23.        | 3,0  | 114,2 | 17,0   | 30     |
| 40    | 10.          | 41. | 11,7 | 4,1   | 37,2   | 8.         | 57.         | 23,3 | 65,6  | 33,1   | 4.        | 21.        | 8,8  | 114,2 | 16,9   | 20     |
| 50    | 10.          | 41. | 7,6  | 4,5   | 37,2   | 8.         | 56.         | 17,7 | 65,9  | 33,1   | 4.        | 19.        | 14,2 | 114,4 | 16,8   | 10     |
|       |              |     |      |       |        |            |             |      |       |        |           |            |      | 114,6 |        |        |
| 9. 0  | 10.          | 41. | 3,1  | 4,8   | 37,2   | 8.         | 55.         | 11,8 | 66,2  | 33,0   | 4.        | 17.        | 19,8 | 114,8 | 16,6   | 21. 0  |
| 10    | 10.          | 40. | 58,3 | 5,1   | 37,2   | 8.         | 54.         | 5,6  | 66,5  | 32,9   | 4.        | 15.        | 25,0 | 114,8 | 16,5   | 20. 50 |
| 20    | 10.          | 40. | 53,2 | 5,4   | 37,2   | 8.         | 52.         | 59,1 | 66,8  | 32,9   | 4.        | 13.        | 30,0 | 115,0 | 16,4   | 40     |
| 30    | 10.          | 40. | 47,8 | 5,7   | 37,2   | 8.         | 51.         | 52,3 | 67,2  | 32,8   | 4.        | 11.        | 34,9 | 115,1 | 16,2   | 30     |
| 40    | 10.          | 40. | 42,1 | 6,1   | 37,2   | 8.         | 50.         | 45,1 | 67,6  | 32,8   | 4.        | 9.         | 36,6 | 115,3 | 16,1   | 20     |
| 50    | 10.          | 40. | 36,0 | 6,4   | 37,2   | 8.         | 49.         | 37,5 | 67,9  | 32,7   | 4.        | 7.         | 44,1 | 115,5 | 16,0   | 10     |
|       |              |     |      |       |        |            |             |      |       |        |           |            |      | 115,8 |        |        |
| 10. 0 | 10.          | 40. | 29,6 | 6,7   | 37,3   | 8.         | 48.         | 29,6 | 68,2  | 32,7   | 4.        | 5.         | 48,3 | 115,9 | 15,8   | 20. 0  |
| 10    | 10.          | 40. | 22,9 | 7,1   | 37,3   | 8.         | 47.         | 21,4 | 68,5  | 32,6   | 4.        | 3.         | 52,4 | 116,0 | 15,7   | 19. 50 |
| 20    | 10.          | 40. | 15,8 | 7,4   | 37,3   | 8.         | 46.         | 12,9 | 68,9  | 32,6   | 4.        | 1.         | 56,4 | 116,2 | 15,6   | 40     |
| 30    | 10.          | 40. | 8,4  | 7,7   | 37,3   | 8.         | 45.         | 4,0  | 69,2  | 32,5   | 4.        | 0.         | 0,2  | 116,4 | 15,5   | 30     |
| 40    | 10.          | 40. | 0,7  | 8,1   | 37,3   | 8.         | 43.         | 54,8 | 69,5  | 32,4   | 3.        | 58.        | 3,8  | 116,4 | 15,4   | 20     |
| 50    | 10.          | 39. | 52,6 | 8,4   | 37,3   | 8.         | 42.         | 45,3 | 69,8  | 32,3   | 3.        | 56.        | 7,3  | 116,5 | 15,3   | 10     |
|       |              |     |      |       |        |            |             |      |       |        |           |            |      | 116,7 |        |        |
| 11. 0 | 10.          | 39. | 44,2 | 8,7   | 37,3   | 8.         | 41.         | 35,5 | 70,1  | 32,3   | 3.        | 54.        | 10,6 | 116,9 | 15,1   | 19. 0  |
| 10    | 10.          | 39. | 35,5 | 9,1   | 37,3   | 8.         | 40.         | 25,4 | 70,5  | 32,2   | 3.        | 52.        | 13,7 | 117,1 | 15,0   | 18. 50 |
| 20    | 10.          | 39. | 26,4 | 9,4   | 37,3   | 8.         | 39.         | 14,9 | 70,8  | 32,1   | 3.        | 50.        | 16,6 | 117,2 | 14,9   | 40     |
| 30    | 10.          | 39. | 17,0 | 9,8   | 37,3   | 8.         | 38.         | 4,1  | 71,2  | 32,1   | 3.        | 48.        | 19,4 | 117,3 | 14,8   | 30     |
| 40    | 10.          | 39. | 7,2  | 10,1  | 37,3   | 8.         | 36.         | 52,9 | 71,5  | 32,0   | 3.        | 46.        | 22,1 | 117,5 | 14,7   | 20     |
| 50    | 10.          | 38. | 57,1 | 10,5  | 37,3   | 8.         | 35.         | 41,4 | 71,8  | 31,9   | 3.        | 44.        | 24,6 | 117,7 | 14,6   | 10     |
| 12. 0 | 10.          | 38. | 46,6 |       | 37,4   | 8.         | 34.         | 29,6 |       | 31,8   | 3.        | 42.        | 26,9 |       | 14,4   | 18. 0  |
|       | Sig. VIII. + |     |      |       |        |            | Sig. VII. + |      |       |        |           | Sig. VI. + |      |       |        |        |



## TABLES OF MARS.

TABLE VII. Equation of the Center of Mars, for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. O. —  |     |      | Diff. | Var. — | Sig. I. — |     |      | Diff. | Var. — | Sig. II. — |     |      | Diff. | Var. — | Deg.   |
|-------|------------|-----|------|-------|--------|-----------|-----|------|-------|--------|------------|-----|------|-------|--------|--------|
|       | D.         | M.  | S.   |       |        | D.        | M.  | S.   |       |        | D.         | M.  | S.   |       |        |        |
| 12. 0 | 1.         | 59. | 33,2 | 98,5  | 6,1    | 6.        | 33. | 44,8 | 80,9  | 20,8   | 9.         | 45. | 31,6 | 43,6  | 32,2   | 18. 0  |
| 10    | 2.         | 1.  | 11,7 | 98,5  | 6,2    | 6.        | 35. | 5,7  | 80,9  | 20,9   | 9.         | 46. | 15,2 | 43,3  | 32,2   | 17. 50 |
| 20    | 2.         | 2.  | 50,2 | 98,5  | 6,3    | 6.        | 36. | 26,4 | 80,7  | 21,0   | 9.         | 46. | 58,5 | 43,3  | 32,3   | 40     |
| 30    | 2.         | 4.  | 28,7 | 98,5  | 6,4    | 6.        | 37. | 47,0 | 80,6  | 21,0   | 9.         | 47. | 41,6 | 43,1  | 32,4   | 30     |
| 40    | 2.         | 6.  | 7,1  | 98,4  | 6,5    | 6.        | 39. | 7,4  | 80,4  | 21,1   | 9.         | 48. | 24,4 | 42,8  | 32,4   | 20     |
| 50    | 2.         | 7.  | 45,5 | 98,4  | 6,6    | 6.        | 40. | 27,6 | 80,2  | 21,2   | 9.         | 49. | 6,9  | 42,5  | 32,5   | 10     |
|       |            |     |      | 98,4  |        |           |     |      | 80,0  |        |            |     |      | 42,2  |        |        |
| 13. 0 | 2.         | 9.  | 23,9 | 98,3  | 6,7    | 6.        | 41. | 47,6 | 79,9  | 21,3   | 9.         | 49. | 49,1 | 42,0  | 32,5   | 17. 0  |
| 10    | 2.         | 11. | 2,2  | 98,3  | 6,8    | 6.        | 43. | 7,5  | 79,7  | 21,3   | 9.         | 50. | 31,1 | 41,7  | 32,6   | 16. 50 |
| 20    | 2.         | 12. | 40,5 | 98,2  | 6,9    | 6.        | 44. | 27,2 | 79,6  | 21,4   | 9.         | 51. | 12,8 | 41,5  | 32,6   | 40     |
| 30    | 2.         | 14. | 18,7 | 98,1  | 7,0    | 6.        | 45. | 46,8 | 79,4  | 21,5   | 9.         | 51. | 54,3 | 41,3  | 32,7   | 30     |
| 40    | 2.         | 15. | 56,8 | 98,1  | 7,1    | 6.        | 47. | 6,2  | 79,3  | 21,6   | 9.         | 52. | 35,6 | 41,1  | 32,7   | 20     |
| 50    | 2.         | 17. | 34,9 | 98,1  | 7,2    | 6.        | 48. | 25,5 | 79,1  | 21,6   | 9.         | 53. | 16,7 | 40,8  | 32,8   | 10     |
|       |            |     |      | 98,1  |        |           |     |      | 79,1  |        |            |     |      | 40,8  |        |        |
| 14. 0 | 2.         | 19. | 13,0 | 98,0  | 7,3    | 6.        | 49. | 44,6 | 78,9  | 21,7   | 9.         | 53. | 57,5 | 40,5  | 32,8   | 16. 0  |
| 10    | 2.         | 20. | 51,0 | 97,9  | 7,3    | 6.        | 51. | 3,5  | 78,8  | 21,7   | 9.         | 54. | 38,0 | 40,2  | 32,9   | 15. 50 |
| 20    | 2.         | 22. | 28,9 | 97,9  | 7,4    | 6.        | 52. | 22,3 | 78,7  | 21,8   | 9.         | 55. | 18,2 | 39,9  | 32,9   | 40     |
| 30    | 2.         | 24. | 6,8  | 97,9  | 7,5    | 6.        | 53. | 41,0 | 78,5  | 21,9   | 9.         | 55. | 58,1 | 39,6  | 32,9   | 30     |
| 40    | 2.         | 25. | 44,7 | 97,8  | 7,6    | 6.        | 54. | 59,5 | 78,4  | 21,9   | 9.         | 56. | 37,7 | 39,4  | 33,0   | 20     |
| 50    | 2.         | 27. | 22,5 | 97,7  | 7,7    | 6.        | 56. | 17,9 | 78,3  | 22,1   | 9.         | 57. | 17,1 | 39,2  | 33,0   | 10     |
|       |            |     |      | 97,7  |        |           |     |      | 78,3  |        |            |     |      | 39,2  |        |        |
| 15. 0 | 2.         | 29. | 0,2  | 97,6  | 7,8    | 6.        | 57. | 36,2 | 78,1  | 22,2   | 9.         | 57. | 56,3 | 38,9  | 33,1   | 15. 0  |
| 10    | 2.         | 30. | 37,8 | 97,5  | 7,8    | 6.        | 58. | 54,3 | 77,9  | 22,2   | 9.         | 58. | 35,2 | 38,6  | 33,1   | 14. 50 |
| 20    | 2.         | 32. | 15,3 | 97,5  | 7,9    | 7.        | 0.  | 12,2 | 77,7  | 22,3   | 9.         | 59. | 13,8 | 38,3  | 33,2   | 40     |
| 30    | 2.         | 33. | 52,8 | 97,5  | 7,9    | 7.        | 1.  | 29,9 | 77,5  | 22,4   | 9.         | 59. | 52,1 | 38,0  | 33,2   | 30     |
| 40    | 2.         | 35. | 30,3 | 97,5  | 8,0    | 7.        | 2.  | 47,4 | 77,2  | 22,4   | 10.        | 0.  | 30,1 | 37,8  | 33,2   | 20     |
| 50    | 2.         | 37. | 7,8  | 97,5  | 8,1    | 7.        | 4.  | 4,6  | 77,0  | 22,5   | 10.        | 1.  | 7,9  | 37,5  | 33,3   | 10     |
|       |            |     |      | 97,4  |        |           |     |      | 77,0  |        |            |     |      | 37,5  |        |        |
| 16. 0 | 2.         | 38. | 45,2 | 97,3  | 8,2    | 7.        | 5.  | 21,6 | 76,9  | 22,5   | 10.        | 1.  | 45,4 | 37,2  | 33,3   | 14. 0  |
| 10    | 2.         | 40. | 22,5 | 97,3  | 8,2    | 7.        | 6.  | 38,5 | 76,8  | 22,5   | 10.        | 2.  | 22,6 | 36,9  | 33,3   | 13. 50 |
| 20    | 2.         | 41. | 59,8 | 97,3  | 8,3    | 7.        | 7.  | 55,3 | 76,7  | 22,6   | 10.        | 2.  | 59,5 | 36,7  | 33,4   | 40     |
| 30    | 2.         | 43. | 37,1 | 97,3  | 8,4    | 7.        | 9.  | 12,0 | 76,6  | 22,7   | 10.        | 3.  | 36,2 | 36,4  | 33,4   | 30     |
| 40    | 2.         | 45. | 14,3 | 97,2  | 8,5    | 7.        | 10. | 28,6 | 76,4  | 22,8   | 10.        | 4.  | 12,6 | 36,1  | 33,5   | 20     |
| 50    | 2.         | 46. | 51,4 | 97,1  | 8,6    | 7.        | 11. | 45,0 | 76,1  | 22,9   | 10.        | 4.  | 48,7 | 35,9  | 33,5   | 10     |
|       |            |     |      | 97,0  |        |           |     |      | 76,1  |        |            |     |      | 35,9  |        |        |
| 17. 0 | 2.         | 48. | 28,4 | 96,9  | 8,7    | 7.        | 13. | 1,1  | 75,9  | 23,0   | 10.        | 5.  | 24,6 | 35,6  | 33,6   | 13. 0  |
| 10    | 2.         | 50. | 5,3  | 96,9  | 8,7    | 7.        | 14. | 17,0 | 75,8  | 23,1   | 10.        | 6.  | 0,2  | 35,3  | 33,6   | 12. 50 |
| 20    | 2.         | 51. | 42,2 | 96,8  | 8,8    | 7.        | 15. | 32,8 | 75,6  | 23,1   | 10.        | 6.  | 35,5 | 35,0  | 33,7   | 40     |
| 30    | 2.         | 53. | 19,0 | 96,8  | 8,9    | 7.        | 16. | 48,4 | 75,5  | 23,2   | 10.        | 7.  | 10,5 | 34,8  | 33,7   | 30     |
| 40    | 2.         | 54. | 55,8 | 96,8  | 9,0    | 7.        | 18. | 3,9  | 75,3  | 23,3   | 10.        | 7.  | 45,3 | 34,5  | 33,7   | 20     |
| 50    | 2.         | 56. | 32,6 | 96,7  | 9,1    | 7.        | 19. | 19,2 | 75,2  | 23,3   | 10.        | 8.  | 19,8 | 34,2  | 33,8   | 10     |
| 18. 0 | 2.         | 58. | 9,3  | 96,7  | 9,2    | 7.        | 20. | 34,4 |       | 23,4   | 10.        | 8.  | 54,0 |       | 33,8   | 12. 0  |
|       |            |     |      |       |        |           |     |      |       |        |            |     |      |       |        |        |
|       | Sig. XI. + |     |      |       |        | Sig. X. + |     |      |       |        | Sig. IX. + |     |      |       |        |        |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. III.—   |     |      | Diff. | Var.— |  | Sig. IV.—   |     |      | Diff. | Var.— |  | Sig. V.—   |     |      | Diff. | Var.— |  | Deg.   |
|-------|--------------|-----|------|-------|-------|--|-------------|-----|------|-------|-------|--|------------|-----|------|-------|-------|--|--------|
|       | D.           | M.  | S.   |       |       |  | D.          | M.  | S.   |       |       |  | D.         | M.  | S.   |       |       |  |        |
| 12. 0 | 10.          | 38. | 46,6 |       |       |  | 8.          | 34. | 29,6 |       |       |  | 3.         | 42. | 26,9 |       |       |  | 18. 0  |
| 10    | 10.          | 38. | 35,8 | 10,8  | 37,4  |  | 8.          | 33. | 17,5 | 72,1  | 31,8  |  | 3.         | 40. | 29,1 | 117,8 | 14,4  |  | 17. 50 |
| 20    | 10.          | 38. | 24,7 | 11,1  | 37,4  |  | 8.          | 32. | 5,1  | 72,4  | 31,7  |  | 3.         | 38. | 31,1 | 118,0 | 14,2  |  | 40     |
| 30    | 10.          | 38. | 13,3 | 11,4  | 37,4  |  | 8.          | 30. | 52,3 | 72,8  | 31,6  |  | 3.         | 36. | 32,9 | 118,2 | 14,1  |  | 30     |
| 40    | 10.          | 38. | 1,6  | 11,7  | 37,4  |  | 8.          | 29. | 39,2 | 73,1  | 31,5  |  | 3.         | 34. | 34,6 | 118,3 | 14,0  |  | 20     |
| 50    | 10.          | 37. | 49,5 | 12,1  | 37,4  |  | 8.          | 28. | 25,8 | 73,4  | 31,4  |  | 3.         | 32. | 36,1 | 118,5 | 13,9  |  | 10     |
|       |              |     |      | 12,4  |       |  |             |     |      | 73,7  |       |  |            |     |      | 118,7 |       |  |        |
| 13. 0 | 10.          | 37. | 37,1 | 12,8  | 37,4  |  | 8.          | 27. | 12,1 | 74,0  | 31,4  |  | 3.         | 30. | 37,4 | 118,8 | 13,6  |  | 17. 0  |
| 10    | 10.          | 37. | 24,3 | 13,1  | 37,4  |  | 8.          | 25. | 58,1 | 74,3  | 31,3  |  | 3.         | 28. | 38,6 | 119,0 | 13,5  |  | 16. 50 |
| 20    | 10.          | 37. | 11,2 | 13,5  | 37,4  |  | 8.          | 24. | 43,8 | 74,6  | 31,2  |  | 3.         | 26. | 39,6 | 119,1 | 13,4  |  | 40     |
| 30    | 10.          | 36. | 57,7 | 13,8  | 37,4  |  | 8.          | 23. | 29,2 | 75,0  | 31,2  |  | 3.         | 24. | 40,5 | 119,2 | 13,2  |  | 30     |
| 40    | 10.          | 36. | 43,9 | 14,1  | 37,4  |  | 8.          | 22. | 14,2 | 75,3  | 31,1  |  | 3.         | 22. | 41,3 | 119,3 | 13,1  |  | 20     |
| 50    | 10.          | 36. | 29,8 | 14,4  | 37,4  |  | 8.          | 20. | 58,9 | 75,7  | 31,0  |  | 3.         | 20. | 42,0 | 119,4 | 13,0  |  | 10     |
|       |              |     |      | 14,7  |       |  |             |     |      | 76,0  |       |  |            |     |      | 119,6 |       |  |        |
| 14. 0 | 10.          | 36. | 15,4 | 15,1  | 37,4  |  | 8.          | 19. | 43,2 | 76,3  | 30,9  |  | 3.         | 18. | 42,6 | 119,7 | 12,9  |  | 16. 0  |
| 10    | 10.          | 36. | 0,7  | 15,5  | 37,4  |  | 8.          | 18. | 27,2 | 76,6  | 30,8  |  | 3.         | 16. | 43,0 | 119,9 | 12,7  |  | 15. 50 |
| 20    | 10.          | 35. | 45,6 | 15,8  | 37,4  |  | 8.          | 17. | 10,9 | 76,9  | 30,8  |  | 3.         | 14. | 43,3 | 120,1 | 12,6  |  | 40     |
| 30    | 10.          | 35. | 30,1 | 16,2  | 37,4  |  | 8.          | 15. | 54,3 | 77,2  | 30,7  |  | 3.         | 12. | 43,4 | 120,3 | 12,4  |  | 30     |
| 40    | 10.          | 35. | 14,3 | 16,6  | 37,4  |  | 8.          | 14. | 37,4 | 77,5  | 30,6  |  | 3.         | 10. | 43,3 | 120,4 | 12,2  |  | 20     |
| 50    | 10.          | 34. | 58,1 | 16,9  | 37,4  |  | 8.          | 13. | 20,2 | 77,8  | 30,5  |  | 3.         | 8.  | 43,0 | 120,5 | 12,1  |  | 10     |
|       |              |     |      | 17,2  |       |  |             |     |      | 78,1  |       |  |            |     |      | 120,6 |       |  |        |
| 15. 0 | 10.          | 34. | 41,5 | 17,6  | 37,4  |  | 8.          | 12. | 2,7  | 78,5  | 30,5  |  | 3.         | 6.  | 42,6 | 120,7 | 11,9  |  | 15. 0  |
| 10    | 10.          | 34. | 24,6 | 17,9  | 37,4  |  | 8.          | 10. | 44,9 | 78,8  | 30,4  |  | 3.         | 4.  | 42,1 | 120,8 | 11,8  |  | 14. 50 |
| 20    | 10.          | 34. | 7,4  | 18,2  | 37,4  |  | 8.          | 9.  | 26,8 | 79,1  | 30,3  |  | 3.         | 2.  | 41,5 | 121,0 | 11,7  |  | 40     |
| 30    | 10.          | 33. | 49,8 | 18,5  | 37,4  |  | 8.          | 8.  | 8,3  | 79,4  | 30,2  |  | 3.         | 0.  | 40,8 | 121,1 | 11,6  |  | 30     |
| 40    | 10.          | 33. | 31,9 | 18,8  | 37,3  |  | 8.          | 6.  | 49,5 | 80,0  | 30,1  |  | 2.         | 58. | 40,0 | 121,2 | 11,5  |  | 20     |
| 50    | 10.          | 33. | 13,7 | 19,2  | 37,3  |  | 8.          | 5.  | 30,4 | 80,4  | 29,9  |  | 2.         | 56. | 39,0 | 121,4 | 11,4  |  | 10     |
|       |              |     |      | 19,6  |       |  |             |     |      | 80,7  |       |  |            |     |      | 121,5 |       |  |        |
| 16. 0 | 10.          | 32. | 55,2 | 19,9  | 37,3  |  | 8.          | 4.  | 11,0 | 81,0  | 29,8  |  | 2.         | 54. | 37,9 | 121,6 | 11,3  |  | 14. 0  |
| 10    | 10.          | 32. | 36,4 | 20,3  | 37,3  |  | 8.          | 2.  | 51,3 | 81,3  | 29,7  |  | 2.         | 52. | 36,7 | 121,8 | 11,1  |  | 13. 50 |
| 20    | 10.          | 32. | 17,2 | 20,7  | 37,3  |  | 8.          | 1.  | 31,3 | 81,6  | 29,6  |  | 2.         | 50. | 35,3 | 121,9 | 11,0  |  | 40     |
| 30    | 10.          | 31. | 57,6 | 21,0  | 37,3  |  | 8.          | 0.  | 10,9 | 81,9  | 29,5  |  | 2.         | 48. | 33,8 | 122,0 | 10,9  |  | 30     |
| 40    | 10.          | 31. | 37,7 | 21,3  | 37,3  |  | 7.          | 58. | 50,2 | 82,2  | 29,4  |  | 2.         | 46. | 32,2 | 122,1 | 10,7  |  | 20     |
| 50    | 10.          | 31. | 17,4 | 21,6  | 37,3  |  | 7.          | 57. | 29,2 | 82,5  | 29,3  |  | 2.         | 44. | 30,4 | 122,2 | 10,6  |  | 10     |
|       |              |     |      | 21,9  |       |  |             |     |      | 82,8  |       |  |            |     |      | 122,3 |       |  |        |
| 17. 0 | 10.          | 30. | 56,7 | 22,3  | 37,3  |  | 7.          | 56. | 7,9  | 83,1  | 29,2  |  | 2.         | 42. | 28,5 | 122,4 | 10,5  |  | 13. 0  |
| 10    | 10.          | 30. | 35,7 | 22,6  | 37,3  |  | 7.          | 54. | 46,3 |       | 29,1  |  | 2.         | 40. | 26,5 | 122,5 | 10,4  |  | 12. 50 |
| 20    | 10.          | 30. | 14,4 |       |       |  | 7.          | 53. | 24,4 |       | 29,0  |  | 2.         | 38. | 24,4 |       | 10,2  |  | 40     |
| 30    | 10.          | 29. | 52,8 |       |       |  | 7.          | 52. | 2,2  |       | 28,9  |  | 2.         | 36. | 22,2 |       | 10,1  |  | 30     |
| 40    | 10.          | 29. | 30,8 |       |       |  | 7.          | 50. | 39,7 |       | 28,8  |  | 2.         | 34. | 19,9 |       | 10,0  |  | 20     |
| 50    | 10.          | 29. | 8,5  |       |       |  | 7.          | 49. | 16,9 |       | 28,7  |  | 2.         | 32. | 17,5 |       | 9,9   |  | 10     |
| 18. 0 | 10.          | 28. | 45,9 |       |       |  | 7.          | 47. | 53,8 |       | 28,6  |  | 2.         | 30. | 15,0 |       | 9,7   |  | 12. 0  |
|       |              |     |      |       |       |  |             |     |      |       |       |  |            |     |      |       |       |  |        |
|       | Sig. VIII. + |     |      |       |       |  | Sig. VII. + |     |      |       |       |  | Sig. VI. + |     |      |       |       |  |        |



## TABLES OF MARS.

TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. O.—   |     |      | Diff. | Var.— | Sig. I.—  |     |      | Diff. | Var.— | Sig. II.—  |     |      | Diff. | Var.— | Deg.   |
|-------|------------|-----|------|-------|-------|-----------|-----|------|-------|-------|------------|-----|------|-------|-------|--------|
|       | D.         | M.  | S.   |       |       | D.        | M.  | S.   |       |       | D.         | M.  | S.   |       |       |        |
| 18. 0 | 2.         | 58. | 9,3  | 96,7  | 9,2   | 7.        | 20. | 34,4 | 75,0  | 23,4  | 10.        | 8.  | 54,0 | 33,9  | 33,8  | 12. 0  |
| 10    | 2.         | 59. | 46,0 | 96,6  | 9,3   | 7.        | 21. | 49,4 | 74,8  | 23,5  | 10.        | 9.  | 27,9 | 33,7  | 33,8  | 11. 50 |
| 20    | 3.         | 1.  | 22,6 | 96,4  | 9,4   | 7.        | 23. | 4,2  | 74,6  | 23,5  | 10.        | 10. | 1,6  | 33,4  | 33,9  | 40     |
| 30    | 3.         | 2.  | 59,0 | 96,3  | 9,5   | 7.        | 24. | 18,8 | 74,4  | 23,6  | 10.        | 10. | 35,0 | 33,1  | 33,9  | 30     |
| 40    | 3.         | 4.  | 35,3 | 96,2  | 9,6   | 7.        | 25. | 33,2 | 74,2  | 23,6  | 10.        | 11. | 8,1  | 32,8  | 34,0  | 20     |
| 50    | 3.         | 6.  | 11,5 | 96,2  | 9,6   | 7.        | 26. | 47,4 | 74,0  | 23,7  | 10.        | 11. | 40,9 | 32,5  | 34,0  | 10     |
| 19. 0 | 3.         | 7.  | 47,7 | 96,2  | 9,7   | 7.        | 28. | 1,4  | 73,9  | 23,8  | 10.        | 12. | 13,4 | 32,3  | 34,1  | 11. 0  |
| 10    | 3.         | 9.  | 23,9 | 96,1  | 9,8   | 7.        | 29. | 15,3 | 73,8  | 23,9  | 10.        | 12. | 45,7 | 32,0  | 34,1  | 10. 50 |
| 20    | 3.         | 11. | 0,1  | 96,1  | 9,9   | 7.        | 30. | 29,1 | 73,6  | 24,0  | 10.        | 13. | 17,7 | 31,7  | 34,2  | 40     |
| 30    | 3.         | 12. | 36,2 | 96,0  | 10,0  | 7.        | 31. | 42,7 | 73,4  | 24,1  | 10.        | 13. | 49,4 | 31,4  | 34,2  | 30     |
| 40    | 3.         | 14. | 12,2 | 95,9  | 10,1  | 7.        | 32. | 56,1 | 73,2  | 24,1  | 10.        | 14. | 20,8 | 31,1  | 34,3  | 20     |
| 50    | 3.         | 15. | 48,1 | 95,9  | 10,2  | 7.        | 34. | 9,3  | 72,9  | 24,2  | 10.        | 14. | 51,9 | 30,9  | 34,3  | 10     |
| 20. 0 | 3.         | 17. | 24,0 | 95,8  | 10,3  | 7.        | 35. | 22,2 | 72,8  | 24,3  | 10.        | 15. | 22,8 | 30,6  | 34,4  | 10. 0  |
| 10    | 3.         | 18. | 59,8 | 95,6  | 10,3  | 7.        | 36. | 35,0 | 72,6  | 24,3  | 10.        | 15. | 53,4 | 30,3  | 34,4  | 9. 50  |
| 20    | 3.         | 20. | 35,4 | 95,5  | 10,4  | 7.        | 37. | 47,6 | 72,5  | 24,4  | 10.        | 16. | 23,7 | 30,0  | 34,4  | 40     |
| 30    | 3.         | 22. | 10,9 | 95,5  | 10,5  | 7.        | 39. | 0,1  | 72,3  | 24,5  | 10.        | 16. | 53,7 | 29,7  | 34,5  | 30     |
| 40    | 3.         | 23. | 46,4 | 95,5  | 10,6  | 7.        | 40. | 12,4 | 72,1  | 24,5  | 10.        | 17. | 23,4 | 29,4  | 34,5  | 20     |
| 50    | 3.         | 25. | 21,9 | 95,4  | 10,6  | 7.        | 41. | 24,5 | 71,9  | 24,6  | 10.        | 17. | 52,8 | 29,2  | 34,6  | 10     |
| 21. 0 | 3.         | 26. | 57,3 | 95,4  | 10,7  | 7.        | 42. | 36,4 | 71,7  | 24,7  | 10.        | 18. | 22,0 | 28,8  | 34,6  | 9. 0   |
| 10    | 3.         | 28. | 32,7 | 95,4  | 10,8  | 7.        | 43. | 48,1 | 71,5  | 24,8  | 10.        | 18. | 50,8 | 28,5  | 34,7  | 8. 50  |
| 20    | 3.         | 30. | 8,1  | 95,3  | 10,9  | 7.        | 44. | 59,6 | 71,3  | 24,8  | 10.        | 19. | 19,3 | 28,2  | 34,7  | 40     |
| 30    | 3.         | 31. | 43,4 | 95,2  | 11,0  | 7.        | 46. | 10,9 | 71,1  | 24,9  | 10.        | 19. | 47,5 | 28,0  | 34,7  | 30     |
| 40    | 3.         | 33. | 18,6 | 95,2  | 11,1  | 7.        | 47. | 22,0 | 70,9  | 25,0  | 10.        | 20. | 15,5 | 27,7  | 34,8  | 20     |
| 50    | 3.         | 34. | 53,8 | 95,1  | 11,1  | 7.        | 48. | 32,9 | 70,6  | 25,0  | 10.        | 20. | 43,2 | 27,4  | 34,8  | 10     |
| 22. 0 | 3.         | 36. | 28,9 | 94,8  | 11,2  | 7.        | 49. | 43,5 | 70,5  | 25,1  | 10.        | 21. | 10,6 | 27,1  | 34,8  | 8. 0   |
| 10    | 3.         | 38. | 3,7  | 94,7  | 11,3  | 7.        | 50. | 54,0 | 70,3  | 25,2  | 10.        | 21. | 37,7 | 26,8  | 34,8  | 7. 50  |
| 20    | 3.         | 39. | 38,4 | 94,5  | 11,4  | 7.        | 52. | 4,3  | 70,2  | 25,2  | 10.        | 22. | 4,5  | 26,5  | 34,9  | 40     |
| 30    | 3.         | 41. | 12,9 | 94,4  | 11,5  | 7.        | 53. | 14,5 | 70,0  | 25,3  | 10.        | 22. | 31,0 | 26,2  | 34,9  | 30     |
| 40    | 3.         | 42. | 47,3 | 94,3  | 11,6  | 7.        | 54. | 24,5 | 69,9  | 25,3  | 10.        | 22. | 57,2 | 26,0  | 34,9  | 20     |
| 50    | 3.         | 44. | 21,6 | 94,3  | 11,6  | 7.        | 55. | 34,4 | 69,8  | 25,4  | 10.        | 23. | 23,2 | 25,7  | 35,0  | 10     |
| 23. 0 | 3.         | 45. | 55,9 | 94,3  | 11,7  | 7.        | 56. | 44,2 | 69,5  | 25,5  | 10.        | 23. | 48,9 | 25,4  | 35,0  | 7. 0   |
| 10    | 3.         | 47. | 30,2 | 94,2  | 11,8  | 7.        | 57. | 53,7 | 69,3  | 25,5  | 10.        | 24. | 14,3 | 25,1  | 35,0  | 6. 50  |
| 20    | 3.         | 49. | 4,4  | 94,2  | 11,9  | 7.        | 59. | 3,0  | 69,1  | 25,6  | 10.        | 24. | 39,4 | 24,8  | 35,1  | 40     |
| 30    | 3.         | 50. | 38,6 | 94,1  | 12,0  | 8.        | 0.  | 12,1 | 68,8  | 25,7  | 10.        | 25. | 4,2  | 24,5  | 35,1  | 30     |
| 40    | 3.         | 52. | 12,7 | 94,0  | 12,1  | 8.        | 1.  | 20,9 | 68,5  | 25,7  | 10.        | 25. | 28,7 | 24,2  | 35,2  | 20     |
| 50    | 3.         | 53. | 46,7 | 93,9  | 12,1  | 8.        | 2.  | 29,4 | 68,3  | 25,8  | 10.        | 25. | 52,9 | 23,9  | 35,2  | 10     |
| 24. 0 | 3.         | 55. | 20,6 |       | 12,2  | 8.        | 3.  | 37,7 |       | 25,9  | 10.        | 26. | 16,8 |       | 35,3  | 6. 0   |
|       | Sig. XI. + |     |      |       |       | Sig. X. + |     |      |       |       | Sig. IX. + |     |      |       |       |        |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. III.—  |     |      | Diff. | Var.— | Sig. IV.—  |     |      | Diff. | Var.— | Sig. V.—  |     |      | Diff. | Var.— | Deg.   |
|-------|-------------|-----|------|-------|-------|------------|-----|------|-------|-------|-----------|-----|------|-------|-------|--------|
|       | D.          | M.  | S.   |       |       | D.         | M.  | S.   |       |       | D.        | M.  | S.   |       |       |        |
| 18. 0 | 10.         | 28. | 45,9 |       | 37,3  | 7.         | 47. | 53,8 | 83,4  | 29,3  | 2.        | 30. | 15,0 | 122,6 | 9,7   | 12. 0  |
| 10    | 10.         | 28. | 23,0 | 22,9  | 37,3  | 7.         | 46. | 30,4 | 83,7  | 29,3  | 2.        | 28. | 12,4 | 122,7 | 9,6   | 11. 50 |
| 20    | 10.         | 27. | 59,7 | 23,3  | 37,3  | 7.         | 45. | 6,7  | 84,1  | 29,2  | 2.        | 26. | 9,7  | 122,8 | 9,5   | 40     |
| 30    | 10.         | 27. | 36,0 | 23,7  | 37,3  | 7.         | 43. | 42,6 | 84,3  | 29,1  | 2.        | 24. | 6,9  | 122,9 | 9,3   | 30     |
| 40    | 10.         | 27. | 11,9 | 24,1  | 37,3  | 7.         | 42. | 18,3 | 84,6  | 29,0  | 2.        | 22. | 4,0  | 123,1 | 9,2   | 20     |
| 50    | 10.         | 26. | 47,5 | 24,4  | 37,3  | 7.         | 40. | 53,7 | 84,9  | 28,9  | 2.        | 20. | 0,9  | 123,3 | 9,1   | 10     |
|       |             |     |      | 24,8  |       |            |     |      |       |       |           |     |      |       |       |        |
| 19. 0 | 10.         | 26. | 22,7 | 25,1  | 37,2  | 7.         | 39. | 28,8 | 85,2  | 28,8  | 2.        | 17. | 57,6 | 123,3 | 8,9   | 11. 0  |
| 10    | 10.         | 25. | 57,6 | 25,4  | 37,2  | 7.         | 38. | 3,6  | 85,5  | 28,8  | 2.        | 15. | 54,3 | 123,4 | 8,8   | 10. 50 |
| 20    | 10.         | 25. | 32,2 | 25,7  | 37,2  | 7.         | 36. | 38,1 | 85,8  | 28,7  | 2.        | 13. | 50,9 | 123,5 | 8,6   | 40     |
| 30    | 10.         | 25. | 6,5  | 26,1  | 37,2  | 7.         | 35. | 12,3 | 86,1  | 28,6  | 2.        | 11. | 47,4 | 123,6 | 8,5   | 30     |
| 40    | 10.         | 24. | 40,4 | 26,4  | 37,2  | 7.         | 33. | 46,2 | 86,5  | 28,5  | 2.        | 9.  | 43,8 | 123,6 | 8,4   | 20     |
| 50    | 10.         | 24. | 14,0 | 26,8  | 37,2  | 7.         | 32. | 19,7 | 86,8  | 28,4  | 2.        | 7.  | 40,2 | 123,7 | 8,2   | 10     |
|       |             |     |      |       |       |            |     |      |       |       |           |     |      |       |       |        |
| 20. 0 | 10.         | 23. | 47,2 | 27,1  | 37,1  | 7.         | 30. | 52,9 | 87,0  | 28,4  | 2.        | 5.  | 36,5 | 123,8 | 8,1   | 10. 0  |
| 10    | 10.         | 23. | 20,1 | 27,4  | 37,1  | 7.         | 29. | 25,9 | 87,4  | 28,3  | 2.        | 3.  | 32,7 | 123,9 | 8,0   | 9. 50  |
| 20    | 10.         | 22. | 52,7 | 27,8  | 37,1  | 7.         | 27. | 58,5 | 87,6  | 28,2  | 2.        | 1.  | 28,8 | 124,0 | 7,8   | 40     |
| 30    | 10.         | 22. | 24,9 | 28,2  | 37,1  | 7.         | 26. | 30,9 | 87,9  | 28,1  | 1.        | 59. | 24,8 | 124,1 | 7,7   | 30     |
| 40    | 10.         | 21. | 56,7 | 28,6  | 37,1  | 7.         | 25. | 3,0  | 88,2  | 28,0  | 1.        | 57. | 20,7 | 124,2 | 7,6   | 20     |
| 50    | 10.         | 21. | 28,1 | 28,9  | 37,1  | 7.         | 23. | 34,8 | 88,5  | 27,9  | 1.        | 55. | 16,5 | 124,2 | 7,4   | 10     |
|       |             |     |      |       |       |            |     |      |       |       |           |     |      |       |       |        |
| 21. 0 | 10.         | 20. | 59,2 | 29,2  | 37,0  | 7.         | 22. | 6,3  | 88,8  | 27,8  | 1.        | 53. | 12,3 | 124,3 | 7,3   | 9. 0   |
| 10    | 10.         | 20. | 30,0 | 29,6  | 37,0  | 7.         | 20. | 37,5 | 89,1  | 27,7  | 1.        | 51. | 8,0  | 124,4 | 7,2   | 8. 50  |
| 20    | 10.         | 20. | 0,4  | 29,9  | 37,0  | 7.         | 19. | 8,4  | 89,3  | 27,6  | 1.        | 49. | 3,6  | 124,5 | 7,1   | 40     |
| 30    | 10.         | 19. | 30,5 | 30,3  | 37,0  | 7.         | 17. | 39,1 | 89,6  | 27,5  | 1.        | 46. | 59,1 | 124,6 | 6,9   | 30     |
| 40    | 10.         | 19. | 0,2  | 30,6  | 37,0  | 7.         | 16. | 9,5  | 89,9  | 27,4  | 1.        | 44. | 54,5 | 124,7 | 6,8   | 20     |
| 50    | 10.         | 18. | 29,6 | 30,9  | 37,0  | 7.         | 14. | 39,6 | 90,2  | 27,3  | 1.        | 42. | 49,8 | 124,7 | 6,6   | 10     |
|       |             |     |      |       |       |            |     |      |       |       |           |     |      |       |       |        |
| 22. 0 | 10.         | 17. | 58,7 | 31,3  | 36,9  | 7.         | 13. | 9,4  | 90,5  | 27,2  | 1.        | 40. | 45,1 | 124,7 | 6,5   | 8. 0   |
| 10    | 10.         | 17. | 27,4 | 31,7  | 36,9  | 7.         | 11. | 38,9 | 90,8  | 27,2  | 1.        | 38. | 40,4 | 124,8 | 6,4   | 7. 50  |
| 20    | 10.         | 16. | 55,7 | 32,0  | 36,9  | 7.         | 10. | 8,1  | 91,1  | 27,1  | 1.        | 36. | 35,6 | 124,9 | 6,2   | 40     |
| 30    | 10.         | 16. | 23,7 | 32,3  | 36,9  | 7.         | 8.  | 37,0 | 91,4  | 27,0  | 1.        | 34. | 30,7 | 125,0 | 6,1   | 30     |
| 40    | 10.         | 15. | 51,4 | 32,6  | 36,9  | 7.         | 7.  | 5,6  | 91,6  | 26,9  | 1.        | 32. | 25,7 | 125,2 | 6,0   | 20     |
| 50    | 10.         | 15. | 18,8 | 33,0  | 36,9  | 7.         | 5.  | 34,0 | 91,9  | 26,8  | 1.        | 30. | 20,5 | 125,3 | 5,9   | 10     |
|       |             |     |      |       |       |            |     |      |       |       |           |     |      |       |       |        |
| 23. 0 | 10.         | 14. | 45,8 | 33,3  | 36,8  | 7.         | 4.  | 2,1  | 92,2  | 26,7  | 1.        | 28. | 15,2 | 125,3 | 5,7   | 7. 0   |
| 10    | 10.         | 14. | 12,5 | 33,6  | 36,8  | 7.         | 2.  | 29,9 | 92,5  | 26,6  | 1.        | 26. | 9,9  | 125,3 | 5,6   | 6. 50  |
| 20    | 10.         | 13. | 38,9 | 34,0  | 36,8  | 7.         | 0.  | 57,4 | 92,8  | 26,5  | 1.        | 24. | 4,6  | 125,3 | 5,4   | 40     |
| 30    | 10.         | 13. | 4,9  | 34,4  | 36,8  | 6.         | 59. | 24,6 | 93,1  | 26,4  | 1.        | 21. | 59,3 | 125,4 | 5,3   | 30     |
| 40    | 10.         | 12. | 30,5 | 34,8  | 36,8  | 6.         | 57. | 51,5 | 93,3  | 26,3  | 1.        | 19. | 53,9 | 125,4 | 5,2   | 20     |
| 50    | 10.         | 11. | 55,7 | 35,1  | 36,8  | 6.         | 56. | 18,2 | 93,6  | 26,2  | 1.        | 17. | 48,5 | 125,4 | 5,1   | 10     |
| 24. 0 | 10.         | 11. | 20,6 |       | 36,7  | 6.         | 54. | 44,6 |       | 26,2  | 1.        | 15. | 43,1 |       | 4,9   | 6. 0   |
|       | Sig. VIII.+ |     |      |       |       | Sig. VII.+ |     |      |       |       | Sig. VI.+ |     |      |       |       |        |



## TABLES OF MARS.

TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. O. —  |     |      | Diff. | Var. | Sig. I.— | Diff.     | Var. | Sig. II.— | Diff. | Var. | Deg. |            |      |      |      |       |      |
|-------|------------|-----|------|-------|------|----------|-----------|------|-----------|-------|------|------|------------|------|------|------|-------|------|
|       | D.         | M.  | S.   | SEC.  | SEC. |          | D.        | M.   |           | S.    | SEC. |      | SEC.       | D.   | M.   | S.   | SEC.  | SEC. |
| 24. 0 | 3.         | 55. | 20,6 |       | 12,2 | 8.       | 3.        | 37,7 | 68,2      | 25,9  |      | 10.  | 26.        | 16,8 | 23,6 | 35,3 | 6. 0  |      |
| 10    | 3.         | 56. | 54,4 | 93,8  | 12,3 | 8.       | 4.        | 45,9 | 68,0      | 25,9  |      | 10.  | 26.        | 40,4 | 23,3 | 35,3 | 5. 50 |      |
| 20    | 3.         | 58. | 28,2 | 93,8  | 12,4 | 8.       | 5.        | 53,9 | 67,9      | 26,1  |      | 10.  | 27.        | 3,7  | 23,3 | 35,3 | 40    |      |
| 30    | 4.         | 0.  | 1,9  | 93,7  | 12,5 | 8.       | 7.        | 1,8  | 67,7      | 26,1  |      | 10.  | 27.        | 26,7 | 23,3 | 35,3 | 30    |      |
| 40    | 4.         | 1.  | 35,5 | 93,6  | 12,6 | 8.       | 8.        | 9,5  | 67,7      | 26,1  |      | 10.  | 27.        | 49,4 | 22,7 | 35,4 | 20    |      |
| 50    | 4.         | 3.  | 9,0  | 93,5  | 12,7 | 8.       | 9.        | 17,0 | 67,5      | 26,1  |      | 10.  | 28.        | 11,9 | 22,5 | 35,4 | 10    |      |
|       |            |     |      | 93,4  |      |          |           |      | 67,4      |       |      |      |            |      | 22,1 |      |       |      |
| 25. 0 | 4.         | 4.  | 42,4 | 93,3  | 12,8 | 8.       | 10.       | 24,4 | 67,2      | 26,3  |      | 10.  | 28.        | 34,0 | 21,8 | 35,5 | 5. 0  |      |
| 10    | 4.         | 6.  | 15,7 | 93,2  | 12,8 | 8.       | 11.       | 31,6 | 67,0      | 26,3  |      | 10.  | 28.        | 55,8 | 21,5 | 35,5 | 4. 50 |      |
| 20    | 4.         | 7.  | 48,9 | 93,1  | 12,9 | 8.       | 12.       | 38,6 | 66,7      | 26,3  |      | 10.  | 29.        | 17,3 | 21,2 | 35,5 | 40    |      |
| 30    | 4.         | 9.  | 22,0 | 93,0  | 12,9 | 8.       | 13.       | 45,3 | 66,4      | 26,5  |      | 10.  | 29.        | 38,5 | 20,9 | 35,6 | 30    |      |
| 40    | 4.         | 10. | 55,0 | 92,9  | 13,0 | 8.       | 14.       | 51,7 | 66,2      | 26,5  |      | 10.  | 29.        | 59,4 | 20,6 | 35,6 | 20    |      |
| 50    | 4.         | 12. | 27,9 | 92,9  | 13,1 | 8.       | 15.       | 57,9 | 66,2      | 26,5  |      | 10.  | 30.        | 20,0 | 20,6 | 35,6 | 10    |      |
|       |            |     |      | 92,9  |      |          |           |      | 65,9      |       |      |      |            |      | 20,3 |      |       |      |
| 26. 0 | 4.         | 14. | 0,8  | 92,8  | 13,2 | 8.       | 17.       | 3,8  | 65,8      | 26,7  |      | 10.  | 30.        | 40,3 | 20,0 | 35,7 | 4. 0  |      |
| 10    | 4.         | 15. | 33,6 | 92,8  | 13,2 | 8.       | 18.       | 9,6  | 65,8      | 26,7  |      | 10.  | 31.        | 0,3  | 20,0 | 35,7 | 3. 50 |      |
| 20    | 4.         | 17. | 6,3  | 92,7  | 13,3 | 8.       | 19.       | 15,2 | 65,6      | 26,9  |      | 10.  | 31.        | 20,0 | 19,7 | 35,7 | 40    |      |
| 30    | 4.         | 18. | 38,9 | 92,6  | 13,3 | 8.       | 20.       | 20,6 | 65,4      | 26,9  |      | 10.  | 31.        | 39,4 | 19,4 | 35,7 | 30    |      |
| 40    | 4.         | 20. | 11,4 | 92,5  | 13,4 | 8.       | 21.       | 25,9 | 65,3      | 26,9  |      | 10.  | 31.        | 58,5 | 19,1 | 35,8 | 20    |      |
| 50    | 4.         | 21. | 43,7 | 92,3  | 13,5 | 8.       | 22.       | 31,0 | 65,1      | 26,9  |      | 10.  | 32.        | 17,3 | 18,8 | 35,8 | 10    |      |
|       |            |     |      | 92,3  | 13,6 |          |           |      | 64,8      |       |      |      |            |      | 18,5 |      |       |      |
|       |            |     |      | 92,2  |      |          |           |      |           |       |      |      |            |      |      |      |       |      |
| 27. 0 | 4.         | 23. | 15,9 | 92,1  | 13,7 | 8.       | 23.       | 35,8 | 64,6      | 27,1  |      | 10.  | 32.        | 35,8 | 18,1 | 35,9 | 3. 0  |      |
| 10    | 4.         | 24. | 48,0 | 92,0  | 13,7 | 8.       | 24.       | 40,4 | 64,6      | 27,1  |      | 10.  | 32.        | 53,9 | 18,1 | 35,9 | 2. 50 |      |
| 20    | 4.         | 26. | 20,0 | 92,0  | 13,8 | 8.       | 25.       | 44,8 | 64,4      | 27,1  |      | 10.  | 33.        | 11,7 | 17,8 | 35,9 | 40    |      |
| 30    | 4.         | 27. | 52,0 | 92,0  | 13,8 | 8.       | 26.       | 49,0 | 64,2      | 27,3  |      | 10.  | 33.        | 29,2 | 17,5 | 35,9 | 30    |      |
| 40    | 4.         | 29. | 23,9 | 91,9  | 13,9 | 8.       | 27.       | 53,0 | 64,0      | 27,3  |      | 10.  | 33.        | 46,5 | 17,3 | 36,0 | 20    |      |
| 50    | 4.         | 30. | 55,7 | 91,8  | 14,0 | 8.       | 28.       | 56,8 | 63,8      | 27,3  |      | 10.  | 34.        | 3,5  | 17,0 | 36,0 | 10    |      |
|       |            |     |      | 91,8  | 14,1 |          |           |      | 63,6      |       |      |      |            |      | 16,8 |      |       |      |
|       |            |     |      | 91,7  |      |          |           |      |           |       |      |      |            |      |      |      |       |      |
| 28. 0 | 4.         | 32. | 27,4 | 91,6  | 14,2 | 8.       | 30.       | 0,4  | 64,6      | 27,1  |      | 10.  | 32.        | 35,8 | 18,1 | 35,9 | 3. 0  |      |
| 10    | 4.         | 33. | 59,0 | 91,6  | 14,2 | 8.       | 31.       | 3,8  | 64,4      | 27,1  |      | 10.  | 32.        | 53,9 | 17,8 | 35,9 | 2. 50 |      |
| 20    | 4.         | 35. | 30,5 | 91,5  | 14,2 | 8.       | 32.       | 7,0  | 64,2      | 27,3  |      | 10.  | 33.        | 11,7 | 17,5 | 35,9 | 40    |      |
| 30    | 4.         | 37. | 1,9  | 91,4  | 14,3 | 8.       | 33.       | 10,0 | 64,0      | 27,3  |      | 10.  | 33.        | 29,2 | 17,3 | 36,0 | 30    |      |
| 40    | 4.         | 38. | 33,2 | 91,3  | 14,4 | 8.       | 34.       | 12,7 | 63,8      | 27,3  |      | 10.  | 33.        | 46,5 | 17,0 | 36,0 | 20    |      |
| 50    | 4.         | 40. | 4,3  | 91,1  | 14,5 | 8.       | 35.       | 15,2 | 63,6      | 27,3  |      | 10.  | 34.        | 3,5  | 17,0 | 36,0 | 10    |      |
|       |            |     |      | 91,1  | 14,6 |          |           |      | 63,6      |       |      |      |            |      | 16,8 |      |       |      |
|       |            |     |      | 91,0  |      |          |           |      |           |       |      |      |            |      |      |      |       |      |
| 29. 0 | 4.         | 41. | 35,3 | 91,0  | 14,7 | 8.       | 36.       | 17,4 | 63,4      | 27,5  |      | 10.  | 34.        | 20,3 | 16,4 | 36,1 | 2. 0  |      |
| 10    | 4.         | 43. | 6,2  | 91,6  | 14,2 | 8.       | 31.       | 3,8  | 63,4      | 27,5  |      | 10.  | 34.        | 36,7 | 16,4 | 36,1 | 1. 50 |      |
| 20    | 4.         | 35. | 30,5 | 91,5  | 14,3 | 8.       | 32.       | 7,0  | 63,2      | 27,5  |      | 10.  | 34.        | 52,8 | 16,1 | 36,1 | 40    |      |
| 30    | 4.         | 37. | 1,9  | 91,4  | 14,3 | 8.       | 33.       | 10,0 | 63,0      | 27,5  |      | 10.  | 34.        | 52,8 | 15,7 | 36,1 | 30    |      |
| 40    | 4.         | 38. | 33,2 | 91,3  | 14,4 | 8.       | 34.       | 12,7 | 62,7      | 27,7  |      | 10.  | 35.        | 8,5  | 15,4 | 36,2 | 20    |      |
| 50    | 4.         | 40. | 4,3  | 91,1  | 14,5 | 8.       | 35.       | 15,2 | 62,5      | 27,7  |      | 10.  | 35.        | 23,9 | 15,2 | 36,2 | 10    |      |
|       |            |     |      | 91,1  | 14,6 |          |           |      | 62,5      |       |      |      |            |      | 15,2 |      |       |      |
|       |            |     |      | 91,0  |      |          |           |      | 62,2      |       |      |      |            |      | 14,9 |      |       |      |
| 30. 0 | 4.         | 41. | 35,3 | 90,9  | 14,7 | 8.       | 36.       | 17,4 | 62,0      | 27,9  |      | 10.  | 35.        | 54,0 | 14,6 | 36,3 | 1. 0  |      |
| 10    | 4.         | 43. | 6,2  | 90,9  | 14,7 | 8.       | 37.       | 19,4 | 61,8      | 27,9  |      | 10.  | 36.        | 8,6  | 14,6 | 36,3 | 0. 50 |      |
| 20    | 4.         | 44. | 37,0 | 90,8  | 14,7 | 8.       | 38.       | 21,2 | 61,6      | 28,0  |      | 10.  | 36.        | 22,9 | 14,3 | 36,3 | 40    |      |
| 30    | 4.         | 46. | 7,7  | 90,7  | 14,8 | 8.       | 39.       | 22,8 | 61,6      | 28,0  |      | 10.  | 36.        | 36,8 | 13,9 | 36,3 | 30    |      |
| 40    | 4.         | 47. | 38,4 | 90,7  | 14,9 | 8.       | 40.       | 24,3 | 61,5      | 28,0  |      | 10.  | 36.        | 36,8 | 13,5 | 36,4 | 20    |      |
| 50    | 4.         | 49. | 9,0  | 90,6  | 15,0 | 8.       | 41.       | 25,6 | 61,3      | 28,1  |      | 10.  | 36.        | 50,3 | 13,2 | 36,4 | 10    |      |
|       | 4.         | 50. | 39,5 | 90,5  | 15,1 | 8.       | 42.       | 26,8 | 61,2      | 28,1  |      | 10.  | 37.        | 3,5  | 12,9 | 36,4 | 0. 0  |      |
|       |            |     |      | 90,5  | 15,2 |          |           |      |           | 28,2  |      |      |            |      |      |      |       |      |
|       | Sig. XI. + |     |      |       |      |          | Sig. X. + |      |           |       |      |      | Sig. IX. + |      |      |      |       |      |



TABLE VII. Equation of the Center of Mars for Jan. 1, 1800, with the Secular Variation, to be applied to the Longitude.

ARGUMENT. *The mean Anomaly of Mars, or mean Longitude of Mars — Longitude of the Aphelion.*

| Deg.  | Sig. III. —  |     |      | Diff. | Var. | Sig. IV. —  | Diff. | Var. | Sig. V. —   |    |    | Diff. | Var. | Deg.  |
|-------|--------------|-----|------|-------|------|-------------|-------|------|-------------|----|----|-------|------|-------|
|       | D.           | M.  | S.   | SEC.  | SEC. |             |       |      | D.          | M. | S. | SEC.  | SEC. |       |
| 24. 0 | 10.          | 11. | 20,6 | 35,5  | 36,7 | 6. 54. 44,6 | 93,9  | 26,2 | 1. 15. 43,1 |    |    | 125,5 | 4,9  | 6. 0  |
| 10    | 10.          | 10. | 45,1 | 35,8  | 36,7 | 6. 53. 10,7 | 94,2  | 26,1 | 1. 13. 37,6 |    |    | 125,6 | 4,8  | 5. 50 |
| 20    | 10.          | 10. | 9,3  | 36,1  | 36,7 | 6. 51. 36,5 | 94,5  | 26,0 | 1. 11. 32,0 |    |    | 125,7 | 4,7  | 40    |
| 30    | 10.          | 9.  | 33,2 | 36,4  | 36,7 | 6. 50. 2,0  | 94,7  | 25,9 | 1. 9. 26,3  |    |    | 125,7 | 4,5  | 30    |
| 40    | 10.          | 8.  | 56,8 | 36,8  | 36,7 | 6. 48. 27,3 | 94,9  | 25,8 | 1. 7. 20,0  |    |    | 125,8 | 4,4  | 20    |
| 50    | 10.          | 8.  | 20,0 | 37,2  | 36,6 | 6. 46. 52,4 | 95,2  | 25,8 | 1. 5. 14,8  |    |    | 125,8 | 4,3  | 10    |
| 25. 0 | 10.          | 7.  | 42,8 | 37,5  | 36,6 | 6. 45. 17,2 | 95,5  | 25,7 | 1. 3. 9,0   |    |    | 125,8 | 4,1  | 5. 0  |
| 10    | 10.          | 7.  | 5,3  | 37,9  | 36,6 | 6. 43. 41,7 | 95,8  | 25,6 | 1. 1. 3,2   |    |    | 125,9 | 4,0  | 4. 50 |
| 20    | 10.          | 6.  | 27,4 | 38,3  | 36,5 | 6. 42. 5,9  | 96,1  | 25,5 | 0. 58. 57,3 |    |    | 125,9 | 3,9  | 40    |
| 30    | 10.          | 5.  | 49,1 | 38,6  | 36,5 | 6. 40. 29,8 | 96,4  | 25,4 | 0. 56. 51,4 |    |    | 126,0 | 3,7  | 30    |
| 40    | 10.          | 5.  | 10,5 | 38,9  | 36,5 | 6. 38. 53,4 | 96,6  | 25,3 | 0. 54. 45,4 |    |    | 126,1 | 3,6  | 20    |
| 50    | 10.          | 4.  | 31,6 | 39,2  | 36,5 | 6. 37. 16,8 | 96,9  | 25,2 | 0. 52. 39,3 |    |    | 126,1 | 3,5  | 10    |
| 26. 0 | 10.          | 3.  | 52,4 | 39,6  | 36,4 | 6. 35. 39,9 | 97,2  | 25,1 | 0. 50. 33,2 |    |    | 126,1 | 3,3  | 4. 0  |
| 10    | 10.          | 3.  | 12,8 | 39,9  | 36,4 | 6. 34. 2,7  | 97,4  | 25,0 | 0. 48. 27,1 |    |    | 126,1 | 3,2  | 3. 50 |
| 20    | 10.          | 2.  | 32,9 | 40,3  | 36,3 | 6. 32. 25,3 | 97,7  | 24,9 | 0. 46. 21,0 |    |    | 126,2 | 3,1  | 40    |
| 30    | 10.          | 1.  | 52,6 | 40,7  | 36,3 | 6. 30. 47,6 | 97,9  | 24,8 | 0. 44. 14,8 |    |    | 126,2 | 2,9  | 30    |
| 40    | 10.          | 1.  | 11,9 | 41,0  | 36,3 | 6. 29. 9,7  | 98,2  | 24,7 | 0. 42. 8,6  |    |    | 126,3 | 2,8  | 20    |
| 50    | 10.          | 0.  | 30,9 | 41,3  | 36,3 | 6. 27. 31,5 | 98,4  | 24,6 | 0. 40. 2,3  |    |    | 126,3 | 2,7  | 10    |
| 27. 0 | 9.           | 59. | 49,6 | 41,6  | 36,2 | 6. 25. 53,1 | 98,7  | 24,5 | 0. 37. 56,0 |    |    | 126,3 | 2,5  | 3. 0  |
| 10    | 9.           | 59. | 8,0  | 42,0  | 36,2 | 6. 24. 14,4 | 99,0  | 24,4 | 0. 35. 49,7 |    |    | 126,3 | 2,4  | 2. 50 |
| 20    | 9.           | 58. | 26,0 | 42,4  | 36,2 | 6. 22. 35,4 | 99,3  | 24,3 | 0. 33. 43,4 |    |    | 126,3 | 2,3  | 40    |
| 30    | 9.           | 57. | 43,6 | 42,7  | 36,1 | 6. 20. 56,1 | 99,5  | 24,2 | 0. 31. 37,1 |    |    | 126,4 | 2,1  | 30    |
| 40    | 9.           | 57. | 0,9  | 43,1  | 36,1 | 6. 19. 16,6 | 99,8  | 24,1 | 0. 29. 30,7 |    |    | 126,4 | 2,0  | 20    |
| 50    | 9.           | 56. | 17,8 | 43,4  | 36,1 | 6. 17. 36,8 | 100,0 | 24,0 | 0. 27. 24,3 |    |    | 126,4 | 1,9  | 10    |
| 28. 0 | 9.           | 55. | 34,4 | 43,7  | 36,0 | 6. 15. 56,8 | 100,3 | 23,9 | 0. 25. 17,9 |    |    | 126,4 | 1,7  | 2. 0  |
| 10    | 9.           | 54. | 50,7 | 44,1  | 36,0 | 6. 14. 16,5 | 100,6 | 23,8 | 0. 23. 11,5 |    |    | 126,4 | 1,6  | 1. 50 |
| 20    | 9.           | 54. | 6,6  | 44,5  | 36,0 | 6. 12. 35,9 | 100,8 | 23,7 | 0. 21. 5,1  |    |    | 126,4 | 1,5  | 40    |
| 30    | 9.           | 53. | 22,1 | 44,8  | 35,9 | 6. 10. 55,1 | 101,0 | 23,6 | 0. 18. 58,7 |    |    | 126,5 | 1,3  | 30    |
| 40    | 9.           | 52. | 37,3 | 45,1  | 35,9 | 6. 9. 14,1  | 101,3 | 23,5 | 0. 16. 52,2 |    |    | 126,5 | 1,2  | 20    |
| 50    | 9.           | 51. | 52,2 | 45,4  | 35,9 | 6. 7. 32,8  | 101,6 | 23,4 | 0. 14. 45,7 |    |    | 126,5 | 1,1  | 10    |
| 29. 0 | 9.           | 51. | 6,8  | 45,8  | 35,8 | 6. 5. 51,2  | 101,9 | 23,3 | 0. 12. 39,2 |    |    | 126,5 | 0,9  | 1. 0  |
| 10    | 9.           | 50. | 21,0 | 46,1  | 35,8 | 6. 4. 9,3   | 102,1 | 23,2 | 0. 10. 32,7 |    |    | 126,5 | 0,8  | 0. 50 |
| 20    | 9.           | 49. | 34,9 | 46,5  | 35,8 | 6. 2. 27,2  | 102,3 | 23,1 | 0. 8. 26,2  |    |    | 126,5 | 0,7  | 40    |
| 30    | 9.           | 48. | 48,4 | 46,9  | 35,7 | 6. 0. 44,9  | 102,5 | 23,0 | 0. 6. 19,7  |    |    | 126,5 | 0,5  | 30    |
| 40    | 9.           | 48. | 1,5  | 47,3  | 35,7 | 5. 59. 2,4  | 102,7 | 22,9 | 0. 4. 13,2  |    |    | 126,6 | 0,3  | 20    |
| 50    | 9.           | 47. | 14,2 | 47,6  | 35,7 | 5. 57. 19,7 | 103,0 | 22,8 | 0. 2. 6,6   |    |    | 126,6 | 0,1  | 10    |
| 30. 0 | 9.           | 46. | 26,6 |       | 35,6 | 5. 55. 36,7 |       | 22,7 | 0. 0. 0,0   |    |    |       | 0,0  | 0. 0  |
|       | Sig. VIII. + |     |      |       |      | Sig. VII. + |       |      | Sig. VI. +  |    |    |       |      |       |



## TABLES OF MARS.

TABLE VIII.

ARGUMENT II. *Long.  $\delta$  — Long.  $\psi$ .*

The equations are all positive, but the sum must be diminished 2 minutes.

|      | 0    | 100  | 200  | 300 | 400  | 500  | 600  | 700  | 800  | 900  |
|------|------|------|------|-----|------|------|------|------|------|------|
| ARG. | "    | "    | "    | "   | "    | "    | "    | "    | "    | "    |
| 0    | 35,0 | 34,8 | 19,0 | 3,2 | 8,7  | 35,0 | 61,3 | 66,8 | 51,0 | 35,2 |
| 10   | 35,4 | 33,9 | 17,0 | 2,7 | 10,6 | 38,1 | 63,0 | 65,9 | 49,0 | 34,5 |
| 20   | 35,8 | 32,8 | 15,0 | 2,3 | 12,8 | 41,1 | 64,4 | 64,9 | 47,0 | 34,0 |
| 30   | 36,2 | 31,5 | 13,0 | 2,3 | 15,0 | 44,1 | 65,7 | 63,6 | 45,2 | 33,6 |
| 40   | 36,4 | 30,0 | 11,1 | 2,3 | 17,6 | 47,0 | 66,6 | 62,2 | 43,3 | 33,4 |
| 50   | 36,6 | 28,5 | 9,4  | 2,7 | 20,2 | 49,8 | 67,3 | 60,6 | 41,5 | 33,4 |
| 60   | 36,6 | 26,7 | 7,8  | 3,4 | 23,0 | 52,4 | 67,7 | 58,9 | 39,9 | 33,6 |
| 70   | 36,4 | 24,8 | 6,4  | 4,3 | 25,9 | 55,0 | 67,7 | 57,0 | 38,5 | 33,8 |
| 80   | 36,0 | 23,0 | 5,1  | 5,6 | 28,9 | 57,2 | 67,7 | 55,0 | 37,2 | 33,2 |
| 90   | 35,5 | 21,0 | 4,1  | 7,0 | 31,9 | 59,4 | 67,3 | 53,0 | 36,1 | 34,6 |
| 100  | 34,8 | 19,0 | 3,2  | 8,7 | 35,0 | 61,3 | 66,8 | 51,0 | 35,2 | 35,0 |

TABLE IX.

ARGUMENT III. *Long.  $\delta$  — 2 Long.  $\psi$ .*

|      | 0    | 100  | 200  | 300  | 400  | 500  | 600  | 700  | 800 | 900  |
|------|------|------|------|------|------|------|------|------|-----|------|
| ARG. | "    | "    | "    | "    | "    | "    | "    | "    | "   | "    |
| 0    | 18,4 | 31,3 | 43,6 | 50,9 | 50,1 | 41,6 | 28,7 | 16,4 | 9,1 | 9,9  |
| 10   | 19,6 | 32,6 | 44,6 | 51,1 | 49,5 | 40,4 | 27,4 | 15,4 | 8,9 | 10,5 |
| 20   | 20,7 | 33,9 | 45,6 | 51,3 | 48,8 | 39,3 | 26,1 | 14,4 | 8,7 | 11,3 |
| 30   | 22,0 | 35,2 | 46,5 | 51,4 | 48,1 | 38,0 | 24,8 | 13,5 | 8,6 | 11,9 |
| 40   | 23,2 | 36,6 | 47,3 | 51,5 | 47,4 | 36,8 | 23,4 | 12,7 | 8,5 | 12,6 |
| 50   | 24,6 | 37,8 | 48,0 | 51,4 | 46,6 | 35,4 | 22,2 | 12,0 | 8,6 | 13,4 |
| 60   | 25,9 | 39,1 | 48,6 | 51,3 | 45,8 | 34,1 | 20,9 | 11,4 | 8,7 | 14,2 |
| 70   | 27,2 | 40,2 | 49,4 | 51,1 | 44,8 | 32,8 | 19,8 | 10,6 | 8,9 | 15,2 |
| 80   | 28,5 | 41,4 | 50,0 | 50,9 | 43,8 | 31,5 | 18,6 | 10,0 | 9,1 | 16,2 |
| 90   | 29,9 | 42,5 | 50,5 | 50,6 | 42,7 | 30,1 | 17,5 | 9,5  | 9,4 | 17,3 |
| 100  | 31,3 | 43,6 | 50,9 | 50,1 | 41,6 | 28,7 | 16,4 | 9,1  | 9,9 | 18,4 |



TABLE X.

| ARGUMENT IV. 2 Long. $\delta$ — 3 Long. $\psi$ . |     |     |     |     |     |     |     |     |     |     |
|--------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                                             | 0   | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|                                                  | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   |
| 0                                                | 6,8 | 7,3 | 7,0 | 5,9 | 4,5 | 3,2 | 2,7 | 3,0 | 4,1 | 5,5 |
| 10                                               | 6,9 | 7,3 | 6,9 | 5,8 | 4,3 | 3,1 | 2,7 | 3,1 | 4,2 | 5,7 |
| 20                                               | 7,0 | 7,3 | 6,8 | 5,6 | 4,2 | 3,0 | 2,7 | 3,2 | 4,4 | 5,8 |
| 30                                               | 7,0 | 7,3 | 6,7 | 5,5 | 4,1 | 3,0 | 2,7 | 3,3 | 4,5 | 5,9 |
| 40                                               | 7,1 | 7,3 | 6,6 | 5,3 | 3,9 | 2,9 | 2,7 | 3,4 | 4,7 | 6,1 |
| 50                                               | 7,2 | 7,3 | 6,5 | 5,2 | 3,8 | 2,8 | 2,7 | 3,5 | 4,8 | 6,2 |
| 60                                               | 7,2 | 7,2 | 6,4 | 5,0 | 3,7 | 2,8 | 2,8 | 3,6 | 5,0 | 6,3 |
| 70                                               | 7,2 | 7,2 | 6,3 | 4,9 | 3,5 | 2,8 | 2,8 | 3,7 | 5,1 | 6,5 |
| 80                                               | 7,3 | 7,1 | 6,2 | 4,8 | 3,4 | 2,7 | 2,9 | 3,8 | 5,2 | 6,6 |
| 90                                               | 7,3 | 7,1 | 6,1 | 4,6 | 3,3 | 2,7 | 2,9 | 3,9 | 5,4 | 6,7 |
| 100                                              | 7,3 | 7,0 | 5,9 | 4,5 | 3,2 | 2,7 | 3,0 | 4,1 | 5,5 | 6,8 |

TABLE XI.

| ARGUMENT V. Long. $\psi$ . |     |     |     |     |     |     |     |     |     |     |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                       | 0   | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|                            | "   | "   | "   | "   | "   | "   | "   | "   | "   | "   |
| 0                          | 8,6 | 7,7 | 5,7 | 3,5 | 1,9 | 1,4 | 2,4 | 4,3 | 6,5 | 8,1 |
| 10                         | 8,6 | 7,5 | 5,4 | 3,3 | 1,8 | 1,5 | 2,5 | 4,6 | 6,7 | 8,2 |
| 20                         | 8,5 | 7,3 | 5,2 | 3,1 | 1,7 | 1,5 | 2,7 | 4,8 | 6,9 | 8,3 |
| 30                         | 8,5 | 7,1 | 5,0 | 2,9 | 1,6 | 1,6 | 2,9 | 5,0 | 7,1 | 8,4 |
| 40                         | 8,4 | 6,9 | 4,8 | 2,7 | 1,5 | 1,7 | 3,1 | 5,2 | 7,3 | 8,5 |
| 50                         | 8,3 | 6,7 | 4,6 | 2,5 | 1,5 | 1,8 | 3,3 | 5,4 | 7,5 | 8,5 |
| 60                         | 8,2 | 6,5 | 4,3 | 2,4 | 1,4 | 1,9 | 3,5 | 5,7 | 7,6 | 8,6 |
| 80                         | 8,1 | 6,3 | 4,1 | 2,3 | 1,4 | 2,0 | 3,7 | 5,9 | 7,7 | 8,6 |
| 70                         | 8,0 | 6,1 | 3,9 | 2,1 | 1,4 | 2,1 | 3,9 | 6,1 | 7,9 | 8,6 |
| 90                         | 7,9 | 5,9 | 3,7 | 2,0 | 1,4 | 2,3 | 4,1 | 6,3 | 8,0 | 8,6 |
| 100                        | 7,7 | 5,7 | 3,5 | 1,9 | 1,4 | 2,4 | 4,3 | 6,5 | 8,1 | 8,6 |



## TABLES OF MARS.

TABLE XII.

| ARGUMENT VI. <i>Long. <math>\Theta</math> — Long. <math>\delta</math>.</i> |      |      |      |      |      |      |     |     |     |      |
|----------------------------------------------------------------------------|------|------|------|------|------|------|-----|-----|-----|------|
|                                                                            | 0    | 100  | 200  | 300  | 400  | 500  | 600 | 700 | 800 | 900  |
| ARG.                                                                       | "    | "    | "    | "    | "    | "    | "   | "   | "   | "    |
| 0                                                                          | 10,0 | 13,2 | 16,5 | 17,3 | 15,2 | 10,0 | 4,8 | 2,7 | 3,5 | 6,8  |
| 10                                                                         | 10,4 | 13,5 | 16,7 | 17,2 | 14,7 | 9,4  | 4,4 | 2,7 | 3,8 | 7,1  |
| 20                                                                         | 10,7 | 13,8 | 16,8 | 17,2 | 14,3 | 8,9  | 4,1 | 2,7 | 4,2 | 7,5  |
| 30                                                                         | 11,0 | 14,1 | 17,0 | 17,1 | 13,8 | 8,3  | 3,8 | 2,7 | 4,5 | 7,8  |
| 40                                                                         | 11,3 | 14,4 | 17,1 | 17,0 | 13,3 | 7,7  | 3,5 | 2,7 | 4,8 | 8,1  |
| 50                                                                         | 11,6 | 14,8 | 17,2 | 16,8 | 12,8 | 7,2  | 3,2 | 2,8 | 5,2 | 8,4  |
| 60                                                                         | 11,9 | 15,2 | 17,3 | 16,5 | 12,3 | 6,7  | 3,0 | 2,9 | 5,6 | 8,7  |
| 70                                                                         | 12,2 | 15,5 | 17,3 | 16,2 | 11,7 | 6,2  | 2,9 | 3,0 | 5,9 | 9,0  |
| 80                                                                         | 12,5 | 15,8 | 17,3 | 15,9 | 11,1 | 5,7  | 2,8 | 3,2 | 6,2 | 9,3  |
| 90                                                                         | 12,9 | 16,2 | 17,3 | 15,6 | 10,6 | 5,3  | 2,8 | 3,3 | 6,5 | 9,6  |
| 100                                                                        | 13,2 | 16,5 | 17,3 | 15,2 | 10,0 | 4,8  | 2,7 | 3,5 | 6,8 | 10,0 |

TABLE XIII.

| ARGUMENT VII. <i>2 Long. <math>\delta</math> — Long. <math>\Theta</math>.</i> |     |     |     |      |      |      |      |      |      |      |
|-------------------------------------------------------------------------------|-----|-----|-----|------|------|------|------|------|------|------|
|                                                                               | 0   | 100 | 200 | 300  | 400  | 500  | 600  | 700  | 800  | 900  |
| ARG.                                                                          | "   | "   | "   | "    | "    | "    | "    | "    | "    | "    |
| 0                                                                             | 5,4 | 1,7 | 3,0 | 8,8  | 17,2 | 24,6 | 28,3 | 27,0 | 21,2 | 12,8 |
| 10                                                                            | 4,8 | 1,5 | 3,4 | 9,6  | 18,1 | 25,2 | 28,5 | 26,6 | 20,4 | 11,9 |
| 20                                                                            | 4,3 | 1,4 | 3,8 | 10,3 | 18,9 | 25,7 | 28,6 | 26,2 | 19,7 | 11,1 |
| 30                                                                            | 3,8 | 1,4 | 4,3 | 11,1 | 19,7 | 26,2 | 28,6 | 25,7 | 18,9 | 10,3 |
| 40                                                                            | 3,4 | 1,5 | 4,8 | 11,9 | 20,4 | 26,6 | 28,5 | 25,2 | 18,1 | 9,6  |
| 50                                                                            | 3,0 | 1,7 | 5,4 | 12,8 | 21,2 | 27,0 | 28,3 | 24,6 | 17,2 | 8,8  |
| 60                                                                            | 2,6 | 1,9 | 6,0 | 13,7 | 21,9 | 27,4 | 28,1 | 24,0 | 16,3 | 8,1  |
| 70                                                                            | 2,3 | 2,1 | 6,6 | 14,5 | 22,7 | 27,7 | 27,9 | 23,4 | 15,5 | 7,3  |
| 80                                                                            | 2,1 | 2,3 | 7,3 | 15,5 | 23,4 | 27,9 | 27,7 | 22,7 | 14,5 | 6,6  |
| 90                                                                            | 1,9 | 2,6 | 8,1 | 16,3 | 24,0 | 28,1 | 27,4 | 21,9 | 13,7 | 6,0  |
| 100                                                                           | 1,7 | 3,0 | 8,8 | 17,2 | 24,6 | 28,3 | 27,0 | 21,2 | 12,8 | 5,4  |



TABLE XIV.

ARGUMENT VIII.  $2 \text{ Long. } \Theta - 3 \text{ Long. } \delta$ .

| ARG. | 0    | 100  | 200  | 300  | 400  | 500  | 600 | 700 | 800 | 900 |
|------|------|------|------|------|------|------|-----|-----|-----|-----|
|      | "    | "    | "    | "    | "    | "    | "   | "   | "   | "   |
| 0    | 6,5  | 10,1 | 13,7 | 15,9 | 15,9 | 13,5 | 9,9 | 6,3 | 4,1 | 4,1 |
| 10   | 6,8  | 10,5 | 14,0 | 16,0 | 15,7 | 13,2 | 9,5 | 6,0 | 4,0 | 4,3 |
| 20   | 7,1  | 10,9 | 14,3 | 16,0 | 15,5 | 12,9 | 9,1 | 5,7 | 4,0 | 4,5 |
| 30   | 7,5  | 11,2 | 14,5 | 16,1 | 15,3 | 12,5 | 8,8 | 5,5 | 3,9 | 4,7 |
| 40   | 7,9  | 11,6 | 14,8 | 16,2 | 15,1 | 12,2 | 8,4 | 5,2 | 3,8 | 4,9 |
| 50   | 8,3  | 11,9 | 15,1 | 16,2 | 14,9 | 11,8 | 8,1 | 4,9 | 3,8 | 5,1 |
| 60   | 8,6  | 12,4 | 15,3 | 16,2 | 14,6 | 11,4 | 7,7 | 4,7 | 3,8 | 5,4 |
| 70   | 9,0  | 12,7 | 15,5 | 16,1 | 14,3 | 11,0 | 7,3 | 4,5 | 3,9 | 5,7 |
| 80   | 9,3  | 13,1 | 15,7 | 16,0 | 14,1 | 10,7 | 6,9 | 4,3 | 4,0 | 5,9 |
| 90   | 9,7  | 13,4 | 15,8 | 16,0 | 13,8 | 10,3 | 6,6 | 4,2 | 4,0 | 6,2 |
| 100  | 10,1 | 13,7 | 15,9 | 15,9 | 13,5 | 9,9  | 6,3 | 4,1 | 4,1 | 6,5 |

TABLE XV.

ARGUMENT IX.  $\text{Long. } \varphi - 3 \text{ Long. } \delta$ .

| ARG. | 0    | 100  | 200  | 300  | 400  | 500  | 600 | 700 | 800 | 900  |
|------|------|------|------|------|------|------|-----|-----|-----|------|
|      | "    | "    | "    | "    | "    | "    | "   | "   | "   | "    |
| 0    | 10,0 | 13,4 | 15,4 | 15,4 | 13,4 | 10,0 | 6,6 | 4,6 | 4,6 | 6,6  |
| 10   | 10,4 | 13,6 | 15,5 | 15,3 | 13,1 | 9,6  | 6,4 | 4,5 | 4,7 | 6,9  |
| 20   | 10,8 | 13,9 | 15,5 | 15,2 | 12,8 | 9,2  | 6,1 | 4,5 | 4,8 | 7,2  |
| 30   | 11,1 | 14,1 | 15,6 | 15,0 | 12,4 | 8,9  | 5,9 | 4,4 | 5,0 | 7,6  |
| 40   | 11,5 | 14,4 | 15,7 | 14,8 | 12,1 | 8,5  | 5,6 | 4,3 | 5,2 | 7,9  |
| 50   | 11,8 | 14,6 | 15,7 | 14,6 | 11,8 | 8,2  | 5,4 | 4,3 | 5,4 | 8,2  |
| 60   | 12,1 | 14,8 | 15,7 | 14,4 | 11,5 | 7,9  | 5,2 | 4,3 | 5,6 | 8,5  |
| 70   | 12,4 | 15,0 | 15,6 | 14,1 | 11,1 | 7,6  | 5,0 | 4,4 | 5,9 | 8,9  |
| 80   | 12,8 | 15,2 | 15,5 | 13,9 | 10,8 | 7,2  | 4,8 | 4,5 | 6,1 | 9,2  |
| 90   | 13,1 | 15,3 | 15,5 | 13,6 | 10,4 | 6,9  | 4,7 | 4,5 | 6,4 | 9,6  |
| 100  | 13,4 | 15,4 | 15,4 | 13,4 | 10,0 | 6,6  | 4,6 | 4,6 | 6,6 | 10,0 |



## TABLES OF MARS.

TABLE XVI. Logarithms of the Radius Vector of the Orbit of Mars for Jan. 1, 1800, with the Secular Variation.

| ARGUMENT. <i>The mean Anomaly of Mars.</i> |          |       |           |          |       |           |          |       |           |    |
|--------------------------------------------|----------|-------|-----------|----------|-------|-----------|----------|-------|-----------|----|
| D.                                         | Sig. O.  | Diff. | Sec. Var. | Sig. I.  | Diff. | Sec. Var. | Sig. II. | Diff. | Sec. Var. | D. |
| 0                                          | 0,221606 |       | +35,8     | 0,217392 | 283   | +31,7     | 0,205193 |       | +21,8     | 30 |
| 1                                          | 0,221601 | 005   | 35,8      | 0,217109 | 292   | 31,5      | 0,204663 | 530   | 21,4      | 29 |
| 2                                          | 0,221587 | 014   | 35,8      | 0,216817 | 301   | 31,3      | 0,204126 | 537   | 21,0      | 28 |
| 3                                          | 0,221564 | 023   | 35,7      | 0,216516 | 310   | 31,0      | 0,203583 | 543   | 20,6      | 27 |
| 4                                          | 0,221531 | 033   | 35,7      | 0,216206 | 318   | 30,8      | 0,203032 | 551   | 20,1      | 26 |
| 5                                          | 0,221488 | 043   | 35,6      | 0,215888 | 328   | 30,5      | 0,202474 | 558   | 19,6      | 25 |
| 6                                          | 0,221437 | 051   | 35,6      | 0,215560 | 336   | 30,2      | 0,201909 | 565   | 19,1      | 24 |
| 7                                          | 0,221375 | 062   | 35,5      | 0,215224 | 345   | 30,0      | 0,201338 | 571   | 18,6      | 23 |
| 8                                          | 0,221305 | 070   | 35,4      | 0,214879 | 354   | 29,7      | 0,200760 | 578   | 18,1      | 22 |
| 9                                          | 0,221224 | 081   | 35,3      | 0,214525 | 362   | 29,5      | 0,200176 | 584   | 17,6      | 21 |
| 10                                         | 0,221135 | 089   | 35,2      | 0,214163 | 371   | 29,2      | 0,199585 | 591   | 17,0      | 20 |
| 11                                         | 0,221036 | 099   | 35,1      | 0,213792 | 379   | 28,9      | 0,198988 | 597   | 16,5      | 19 |
| 12                                         | 0,220927 | 109   | 35,0      | 0,213413 | 388   | 28,6      | 0,198385 | 603   | 16,0      | 18 |
| 13                                         | 0,220810 | 117   | 34,9      | 0,213025 | 396   | 28,3      | 0,197776 | 609   | 15,5      | 17 |
| 14                                         | 0,220683 | 127   | 34,7      | 0,212629 | 405   | 28,0      | 0,197162 | 614   | 15,0      | 16 |
| 15                                         | 0,220546 | 137   | 34,6      | 0,212224 | 412   | 27,7      | 0,196541 | 621   | 14,5      | 15 |
| 16                                         | 0,220401 | 145   | 34,4      | 0,211812 | 422   | 27,3      | 0,195915 | 626   | 13,9      | 14 |
| 17                                         | 0,220246 | 155   | 34,3      | 0,211390 | 429   | 27,0      | 0,195283 | 632   | 13,4      | 13 |
| 18                                         | 0,220081 | 165   | 34,2      | 0,210961 | 438   | 26,6      | 0,194646 | 637   | 12,8      | 12 |
| 19                                         | 0,219908 | 173   | 34,1      | 0,210523 | 445   | 26,2      | 0,194003 | 643   | 12,3      | 11 |
| 20                                         | 0,219725 | 183   | 33,9      | 0,210078 | 454   | 25,8      | 0,193356 | 647   | 11,8      | 10 |
| 21                                         | 0,219533 | 192   | 33,7      | 0,209624 | 461   | 25,4      | 0,192703 | 653   | 11,2      | 9  |
| 22                                         | 0,219332 | 201   | 33,5      | 0,209163 | 470   | 25,0      | 0,192046 | 657   | 10,6      | 8  |
| 23                                         | 0,219121 | 211   | 33,3      | 0,208693 | 477   | 24,6      | 0,191384 | 662   | 10,0      | 7  |
| 24                                         | 0,218901 | 220   | 33,1      | 0,208216 | 485   | 24,2      | 0,190718 | 666   | 9,4       | 6  |
| 25                                         | 0,218673 | 228   | 32,9      | 0,207731 | 493   | 23,8      | 0,190048 | 670   | 8,8       | 5  |
| 26                                         | 0,218435 | 238   | 32,7      | 0,207238 | 500   | 23,4      | 0,189373 | 675   | 8,2       | 4  |
| 27                                         | 0,218188 | 247   | 32,5      | 0,206738 | 507   | 23,0      | 0,188694 | 679   | 7,6       | 3  |
| 28                                         | 0,217932 | 256   | 32,2      | 0,206231 | 516   | 22,6      | 0,188011 | 683   | 7,0       | 2  |
| 29                                         | 0,217667 | 265   | 32,0      | 0,205715 | 522   | 22,2      | 0,187324 | 687   | 6,4       | 1  |
| 30                                         | 0,217392 | 275   | 31,7      | 0,205193 |       | 21,8      | 0,186635 | 689   | 5,8       | 0  |
|                                            | Sig. XI. |       |           | Sig. X.  |       |           | Sig. IX. |       |           |    |



TABLE XVI. Logarithms of the Radius Vector of the Orbit of Mars for Jan. 1, 1800, with the Secular Variation.

| ARGUMENT. <i>The mean Anomaly of Mars.</i> |            |       |           |           |       |           |          |       |           |    |
|--------------------------------------------|------------|-------|-----------|-----------|-------|-----------|----------|-------|-----------|----|
| D.                                         | Sig. III.  | Diff. | Sec. Var. | Sig. IV.  | Diff. | Sec. Var. | Sig. V.  | Diff. | Sec. Var. | D. |
| 0                                          | 0,186635   | 694   | + 5,8     | 0,165331  | 692   | - 15,4    | 0,147503 | 446   | - 34,8    | 30 |
| 1                                          | 0,185941   | 696   | 5,2       | 0,164639  | 687   | 16,1      | 0,147057 | 433   | 35,3      | 29 |
| 2                                          | 0,185245   | 699   | 4,5       | 0,163952  | 683   | 16,8      | 0,146624 | 420   | 35,8      | 28 |
| 3                                          | 0,184546   | 702   | 3,8       | 0,163269  | 678   | 17,6      | 0,146204 | 408   | 36,3      | 27 |
| 4                                          | 0,183844   | 704   | 3,3       | 0,162591  | 674   | 18,4      | 0,145796 | 394   | 36,8      | 26 |
| 5                                          | 0,183140   | 707   | 2,6       | 0,161917  | 669   | 19,1      | 0,145402 | 381   | 37,3      | 25 |
| 6                                          | 0,182433   | 709   | 1,9       | 0,161248  | 663   | 19,8      | 0,145021 | 367   | 37,8      | 24 |
| 7                                          | 0,181724   | 712   | 1,2       | 0,160585  | 657   | 20,5      | 0,144654 | 353   | 38,2      | 23 |
| 8                                          | 0,181012   | 713   | + 0,5     | 0,159928  | 652   | 21,2      | 0,144301 | 338   | 38,6      | 22 |
| 9                                          | 0,180299   | 714   | - 0,2     | 0,159276  | 645   | 21,9      | 0,143963 | 324   | 39,0      | 21 |
| 10                                         | 0,179585   | 716   | 0,9       | 0,158631  | 639   | 22,7      | 0,143639 | 310   | 39,3      | 20 |
| 11                                         | 0,178869   | 717   | 1,6       | 0,157992  | 632   | 23,5      | 0,143329 | 295   | 39,6      | 19 |
| 12                                         | 0,178152   | 717   | 2,3       | 0,157360  | 625   | 24,2      | 0,143034 | 280   | 39,9      | 18 |
| 13                                         | 0,177435   | 718   | 3,0       | 0,156735  | 618   | 25,0      | 0,142754 | 265   | 40,2      | 17 |
| 14                                         | 0,176717   | 719   | 3,7       | 0,156117  | 607   | 25,7      | 0,142489 | 250   | 40,5      | 16 |
| 15                                         | 0,175998   | 720   | 4,4       | 0,155510  | 600   | 26,3      | 0,142239 | 234   | 40,8      | 15 |
| 16                                         | 0,175279   | 720   | 5,1       | 0,154910  | 593   | 27,0      | 0,142005 | 220   | 41,1      | 14 |
| 17                                         | 0,174559   | 719   | 5,8       | 0,154317  | 585   | 27,6      | 0,141785 | 204   | 41,3      | 13 |
| 18                                         | 0,173840   | 718   | 6,6       | 0,153732  | 576   | 28,3      | 0,141581 | 188   | 41,5      | 12 |
| 19                                         | 0,173122   | 717   | 7,3       | 0,153156  | 565   | 29,0      | 0,141393 | 171   | 41,7      | 11 |
| 20                                         | 0,172405   | 716   | 8,0       | 0,152591  | 557   | 29,7      | 0,141222 | 155   | 41,9      | 10 |
| 21                                         | 0,171689   | 715   | 8,8       | 0,152034  | 547   | 30,3      | 0,141067 | 139   | 42,1      | 9  |
| 22                                         | 0,170974   | 713   | 9,5       | 0,151487  | 537   | 30,9      | 0,140928 | 123   | 42,3      | 8  |
| 23                                         | 0,170261   | 712   | 10,3      | 0,150950  | 526   | 31,4      | 0,140805 | 108   | 42,4      | 7  |
| 24                                         | 0,169549   | 709   | 11,0      | 0,150424  | 515   | 31,9      | 0,140697 | 91    | 42,5      | 6  |
| 25                                         | 0,168840   | 707   | 11,7      | 0,149909  | 504   | 32,4      | 0,140606 | 74    | 42,6      | 5  |
| 26                                         | 0,168133   | 705   | 12,4      | 0,149405  | 493   | 32,9      | 0,140532 | 58    | 42,7      | 4  |
| 27                                         | 0,167428   | 702   | 13,2      | 0,148912  | 481   | 33,4      | 0,140474 | 41    | 42,8      | 3  |
| 28                                         | 0,166726   | 699   | 14,0      | 0,148431  | 470   | 33,8      | 0,140433 | 25    | 42,8      | 2  |
| 29                                         | 0,166027   | 696   | 14,7      | 0,147961  | 458   | 34,3      | 0,140408 | 9     | 42,9      | 1  |
| 30                                         | 0,165331   |       | 15,4      | 0,147503  |       | 34,8      | 0,140399 |       | 42,9      | 0  |
|                                            | Sig. VIII. |       |           | Sig. VII. |       |           | Sig. VI. |       |           |    |



## TABLES OF MARS.

TABLE XVII. Equation of the Radius Vector.

| ARGUMENT II. <i>Long. <math>\delta</math> — Long. <math>\psi</math>.</i> |     |     |     |     |     |     |     |     |     |     |
|--------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                                                                     | 0   | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| 0                                                                        | 142 | 185 | 224 | 165 | 55  | 0   | 55  | 165 | 224 | 185 |
| 10                                                                       | 143 | 192 | 223 | 155 | 46  | 0   | 65  | 174 | 224 | 178 |
| 20                                                                       | 144 | 198 | 221 | 144 | 36  | 2   | 76  | 184 | 223 | 172 |
| 30                                                                       | 147 | 204 | 217 | 133 | 28  | 5   | 87  | 193 | 221 | 166 |
| 40                                                                       | 150 | 210 | 213 | 121 | 21  | 9   | 98  | 200 | 218 | 160 |
| 50                                                                       | 155 | 214 | 207 | 109 | 15  | 15  | 109 | 207 | 214 | 155 |
| 60                                                                       | 160 | 218 | 200 | 98  | 9   | 21  | 121 | 213 | 210 | 150 |
| 70                                                                       | 166 | 221 | 193 | 87  | 5   | 28  | 133 | 217 | 204 | 147 |
| 80                                                                       | 172 | 223 | 184 | 76  | 2   | 36  | 144 | 221 | 198 | 144 |
| 90                                                                       | 178 | 224 | 174 | 65  | 0   | 46  | 155 | 223 | 192 | 143 |
| 100                                                                      | 185 | 224 | 165 | 55  | 0   | 55  | 165 | 224 | 185 | 142 |

TABLE XVIII.

| ARGUMENT III. <i>Long. <math>\delta</math> — 2 Long. <math>\psi</math>.</i> |   |     |     |     |     |     |     |     |     |     |
|-----------------------------------------------------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                                                                        | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| 0                                                                           | 9 | 0   | 12  | 41  | 75  | 101 | 110 | 98  | 69  | 35  |
| 10                                                                          | 7 | 0   | 15  | 44  | 78  | 103 | 110 | 95  | 66  | 32  |
| 20                                                                          | 6 | 1   | 17  | 48  | 81  | 104 | 109 | 93  | 62  | 29  |
| 30                                                                          | 4 | 2   | 20  | 51  | 84  | 106 | 108 | 90  | 59  | 26  |
| 40                                                                          | 3 | 3   | 22  | 54  | 87  | 107 | 107 | 88  | 56  | 23  |
| 50                                                                          | 2 | 4   | 25  | 58  | 90  | 108 | 106 | 85  | 52  | 20  |
| 60                                                                          | 1 | 5   | 28  | 61  | 92  | 109 | 105 | 82  | 49  | 18  |
| 70                                                                          | 1 | 7   | 31  | 65  | 95  | 109 | 103 | 79  | 45  | 15  |
| 80                                                                          | 0 | 9   | 34  | 68  | 97  | 110 | 101 | 76  | 42  | 13  |
| 90                                                                          | 0 | 10  | 38  | 71  | 99  | 110 | 100 | 72  | 39  | 11  |
| 100                                                                         | 0 | 12  | 41  | 75  | 101 | 110 | 98  | 69  | 35  | 9   |



TABLE XIX.

ARGUMENT IV. 2 Long.  $\delta$  — 3 Long.  $\gamma$ .

| ARG. | 0  | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0    | 4  | 11  | 17  | 21  | 22  | 18  | 11  | 5   | 1   | 0   |
| 10   | 5  | 11  | 18  | 21  | 21  | 17  | 11  | 4   | 1   | 1   |
| 20   | 5  | 12  | 18  | 22  | 21  | 17  | 10  | 4   | 0   | 1   |
| 30   | 6  | 13  | 19  | 22  | 21  | 16  | 9   | 3   | 0   | 1   |
| 40   | 7  | 13  | 19  | 22  | 21  | 15  | 9   | 3   | 0   | 1   |
| 50   | 7  | 14  | 20  | 22  | 20  | 15  | 8   | 2   | 0   | 2   |
| 60   | 8  | 15  | 20  | 22  | 20  | 14  | 7   | 2   | 0   | 2   |
| 70   | 9  | 15  | 20  | 22  | 19  | 13  | 7   | 2   | 0   | 3   |
| 80   | 9  | 16  | 21  | 22  | 19  | 13  | 6   | 1   | 0   | 3   |
| 90   | 10 | 17  | 21  | 22  | 18  | 12  | 5   | 1   | 0   | 4   |
| 100  | 11 | 17  | 21  | 22  | 18  | 11  | 5   | 1   | 0   | 4   |

TABLE XX.

ARGUMENT V. Long.  $\gamma$ .

| ARG. | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0    | 2 | 7   | 13  | 17  | 18  | 16  | 11  | 5   | 1   | 0   |
| 10   | 3 | 8   | 13  | 17  | 18  | 15  | 10  | 5   | 1   | 0   |
| 20   | 3 | 8   | 14  | 17  | 18  | 15  | 10  | 4   | 1   | 0   |
| 30   | 4 | 9   | 14  | 17  | 18  | 14  | 9   | 4   | 1   | 0   |
| 40   | 4 | 9   | 15  | 18  | 17  | 14  | 9   | 3   | 0   | 1   |
| 50   | 5 | 10  | 15  | 18  | 17  | 13  | 8   | 3   | 0   | 1   |
| 60   | 5 | 11  | 15  | 18  | 17  | 13  | 7   | 3   | 0   | 1   |
| 70   | 6 | 11  | 16  | 18  | 17  | 12  | 7   | 2   | 0   | 1   |
| 80   | 6 | 12  | 16  | 18  | 16  | 12  | 6   | 2   | 0   | 2   |
| 90   | 7 | 12  | 16  | 18  | 16  | 11  | 6   | 2   | 0   | 2   |
| 100  | 7 | 13  | 17  | 18  | 16  | 11  | 5   | 1   | 0   | 2   |



TABLE XXI.

| ARGUMENT VI. <i>Long. <math>\Theta</math> — Long. <math>\delta</math>.</i> |   |     |     |     |     |     |     |     |     |     |
|----------------------------------------------------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                                                                       | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| 0                                                                          | 1 | 0   | 3   | 17  | 31  | 37  | 31  | 17  | 3   | 0   |
| 10                                                                         | 1 | 0   | 4   | 18  | 32  | 37  | 30  | 15  | 2   | 0   |
| 20                                                                         | 1 | 0   | 5   | 20  | 33  | 37  | 29  | 13  | 1   | 0   |
| 30                                                                         | 1 | 0   | 6   | 21  | 34  | 37  | 27  | 12  | 1   | 0   |
| 40                                                                         | 1 | 0   | 8   | 23  | 35  | 36  | 26  | 10  | 1   | 1   |
| 50                                                                         | 1 | 1   | 9   | 25  | 36  | 36  | 25  | 9   | 1   | 1   |
| 60                                                                         | 1 | 1   | 10  | 26  | 36  | 35  | 23  | 8   | 0   | 1   |
| 70                                                                         | 0 | 1   | 12  | 27  | 37  | 34  | 21  | 6   | 0   | 1   |
| 80                                                                         | 0 | 2   | 13  | 29  | 37  | 33  | 20  | 5   | 0   | 1   |
| 90                                                                         | 0 | 2   | 15  | 30  | 37  | 32  | 18  | 4   | 0   | 1   |
| 100                                                                        | 0 | 3   | 17  | 31  | 37  | 31  | 17  | 3   | 0   | 1   |

TABLE XXII.

| ARGUMENT VII. <i>2 Long. <math>\delta</math> — Long. <math>\Theta</math>.</i> |    |     |     |     |     |     |     |     |     |     |
|-------------------------------------------------------------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ARG.                                                                          | 0  | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| 0                                                                             | 19 | 13  | 6   | 2   | 0   | 3   | 9   | 16  | 20  | 22  |
| 10                                                                            | 19 | 13  | 6   | 1   | 0   | 3   | 9   | 16  | 21  | 22  |
| 20                                                                            | 18 | 12  | 5   | 1   | 0   | 4   | 10  | 17  | 21  | 22  |
| 30                                                                            | 18 | 11  | 5   | 1   | 1   | 4   | 11  | 17  | 21  | 21  |
| 40                                                                            | 17 | 10  | 4   | 0   | 1   | 5   | 12  | 18  | 22  | 21  |
| 50                                                                            | 17 | 9   | 4   | 0   | 1   | 5   | 13  | 18  | 22  | 21  |
| 60                                                                            | 16 | 9   | 3   | 0   | 1   | 6   | 13  | 19  | 22  | 21  |
| 70                                                                            | 16 | 8   | 3   | 0   | 2   | 6   | 14  | 19  | 22  | 20  |
| 80                                                                            | 15 | 7   | 2   | 0   | 2   | 7   | 15  | 20  | 22  | 20  |
| 90                                                                            | 14 | 7   | 2   | 0   | 2   | 8   | 15  | 20  | 22  | 20  |
| 100                                                                           | 13 | 6   | 2   | 0   | 3   | 9   | 16  | 20  | 22  | 19  |



TABLE XXIII.

ARGUMENT VIII.  $2 \text{ Long. } \ominus - 3 \text{ Long. } \delta$ .

| ARG. | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0    | 4 | 0   | 4   | 13  | 25  | 34  | 38  | 34  | 25  | 13  |
| 10   | 4 | 0   | 5   | 14  | 26  | 34  | 38  | 33  | 24  | 12  |
| 20   | 3 | 0   | 5   | 16  | 27  | 35  | 38  | 33  | 23  | 11  |
| 30   | 3 | 1   | 6   | 17  | 28  | 36  | 37  | 32  | 22  | 10  |
| 40   | 2 | 1   | 7   | 18  | 29  | 36  | 37  | 31  | 20  | 9   |
| 50   | 2 | 2   | 8   | 19  | 30  | 36  | 36  | 30  | 19  | 8   |
| 60   | 2 | 2   | 9   | 20  | 31  | 37  | 36  | 29  | 18  | 7   |
| 70   | 1 | 2   | 10  | 21  | 32  | 37  | 36  | 28  | 17  | 6   |
| 80   | 1 | 3   | 11  | 22  | 33  | 38  | 35  | 27  | 16  | 5   |
| 90   | 0 | 3   | 12  | 24  | 33  | 38  | 35  | 26  | 14  | 5   |
| 100  | 0 | 4   | 13  | 25  | 34  | 38  | 34  | 25  | 13  | 4   |

TABLE XXIV. The Equation of the Radius Vector in parts of its Logarithm.

ARGUMENT. *At the Side, the Log. of the Radius Vector; and at the Top, the Sum of the preceding Equations diminished by 263.*

| ARG. Log. of Rad. Vect. | 100  | 200  | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
|-------------------------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 0,220000                | 26,2 | 52,3 | 78  | 105 | 131 | 157 | 183 | 209 | 235 |
| 0,215                   | 26,5 | 53,0 | 79  | 106 | 133 | 159 | 185 | 211 | 238 |
| 0,210                   | 26,8 | 53,6 | 80  | 107 | 134 | 161 | 187 | 214 | 241 |
| 0,205                   | 27,0 | 54,1 | 81  | 108 | 135 | 162 | 189 | 216 | 243 |
| 0,200                   | 27,4 | 54,8 | 82  | 109 | 137 | 164 | 192 | 219 | 246 |
| 0,195                   | 27,7 | 55,4 | 83  | 111 | 139 | 166 | 194 | 221 | 249 |
| 0,190                   | 28,0 | 56,1 | 84  | 112 | 140 | 168 | 196 | 224 | 252 |
| 0,185                   | 28,3 | 56,6 | 85  | 113 | 142 | 170 | 198 | 226 | 255 |
| 0,180                   | 28,7 | 57,4 | 86  | 115 | 144 | 172 | 201 | 229 | 258 |
| 0,175                   | 29,0 | 58,0 | 87  | 116 | 145 | 174 | 203 | 232 | 261 |
| 0,170                   | 29,3 | 58,7 | 88  | 117 | 147 | 176 | 205 | 234 | 264 |
| 0,165                   | 29,7 | 59,4 | 89  | 119 | 148 | 178 | 208 | 237 | 267 |
| 0,160                   | 30,0 | 60,0 | 90  | 120 | 150 | 180 | 210 | 240 | 270 |
| 0,155                   | 30,4 | 60,7 | 91  | 121 | 152 | 182 | 213 | 243 | 273 |
| 0,150                   | 30,7 | 61,4 | 92  | 123 | 153 | 184 | 215 | 246 | 276 |
| 0,145                   | 31,1 | 62,2 | 93  | 124 | 155 | 186 | 218 | 249 | 280 |
| 0,140                   | 31,4 | 62,8 | 94  | 126 | 157 | 188 | 220 | 252 | 283 |



TABLE XXV. Heliocentric Latitude of Mars.

| ARGUMENT. <i>The Longitude upon the Orbit — the Longitude of the Node.</i> |             |          |         |              |          |         |               |          |         |          |
|----------------------------------------------------------------------------|-------------|----------|---------|--------------|----------|---------|---------------|----------|---------|----------|
| Degrees.                                                                   | Sig. O. N.  |          | Differ. | Sig. I. N.   |          | Differ. | Sig. II. N.   |          | Differ. | Degrees. |
|                                                                            | Sig. VI. S. |          |         | Sig. VII. S. |          |         | Sig. VIII. S. |          |         |          |
|                                                                            | D.          | M. S.    |         | D.           | M. S.    |         | D.            | M. S.    |         |          |
| 0                                                                          | O.          | O. 0,0   |         | O.           | 55. 31,3 | 100,2   | I.            | 36. 10,5 |         | 30       |
| 1                                                                          | O.          | I. 56,3  | 116,3   | O.           | 57. 11,5 | 99,2    | I.            | 37. 7,8  | 57,3    | 29       |
| 2                                                                          | O.          | 3. 52,5  | 116,3   | O.           | 58. 50,7 | 98,1    | I.            | 38. 3,3  | 55,5    | 28       |
| 3                                                                          | O.          | 5. 48,7  | 116,2   | I.           | O. 28,8  | 97,0    | I.            | 38. 57,0 | 53,7    | 27       |
|                                                                            |             |          | 116,0   |              |          |         |               |          | 51,9    |          |
| 4                                                                          | O.          | 7. 44,7  | 115,9   | I.           | 2. 5,8   | 95,8    | I.            | 39. 48,9 | 50,1    | 26       |
| 5                                                                          | O.          | 9. 40,6  | 115,8   | I.           | 3. 41,6  | 94,7    | I.            | 40. 39,0 | 48,2    | 25       |
| 6                                                                          | O.          | 11. 36,4 | 115,6   | I.           | 5. 16,3  | 93,5    | I.            | 41. 27,2 | 46,4    | 24       |
| 7                                                                          | O.          | 13. 32,0 | 115,3   | I.           | 6. 49,8  | 92,2    | I.            | 42. 13,6 | 44,6    | 23       |
| 8                                                                          | O.          | 15. 27,3 | 114,9   | I.           | 8. 22,0  | 91,0    | I.            | 42. 58,2 | 42,7    | 22       |
| 9                                                                          | O.          | 17. 22,2 | 114,7   | I.           | 9. 53,0  | 89,7    | I.            | 43. 40,9 | 40,7    | 21       |
| 10                                                                         | O.          | 19. 16,9 | 114,3   | I.           | 11. 22,7 | 88,5    | I.            | 44. 21,6 | 38,8    | 20       |
| 11                                                                         | O.          | 21. 11,2 | 114,0   | I.           | 12. 51,2 | 87,1    | I.            | 45. 0,4  | 36,9    | 19       |
| 12                                                                         | O.          | 23. 5,2  | 113,5   | I.           | 14. 18,3 | 85,8    | I.            | 45. 37,3 | 35,0    | 18       |
| 13                                                                         | O.          | 24. 58,7 | 113,1   | I.           | 15. 44,1 | 84,4    | I.            | 46. 12,3 | 33,0    | 17       |
| 14                                                                         | O.          | 26. 51,8 | 112,6   | I.           | 17. 8,5  | 82,9    | I.            | 46. 45,3 | 31,1    | 16       |
| 15                                                                         | O.          | 28. 44,4 | 112,0   | I.           | 18. 31,4 | 81,5    | I.            | 47. 16,4 | 29,1    | 15       |
| 16                                                                         | O.          | 30. 36,4 | 111,5   | I.           | 19. 52,9 | 80,1    | I.            | 47. 45,5 | 27,1    | 14       |
| 17                                                                         | O.          | 32. 27,9 | 110,9   | I.           | 21. 13,0 | 78,6    | I.            | 48. 12,6 | 25,2    | 13       |
| 18                                                                         | O.          | 34. 18,8 | 110,3   | I.           | 22. 31,6 | 77,0    | I.            | 48. 37,8 | 23,2    | 12       |
| 19                                                                         | O.          | 36. 9,1  | 109,6   | I.           | 23. 48,6 | 75,5    | I.            | 49. 1,0  | 21,2    | 11       |
| 20                                                                         | O.          | 37. 58,7 | 108,9   | I.           | 25. 4,1  | 74,0    | I.            | 49. 22,2 | 19,2    | 10       |
| 21                                                                         | O.          | 39. 47,6 | 108,2   | I.           | 26. 18,1 | 72,5    | I.            | 49. 41,4 | 17,2    | 9        |
| 22                                                                         | O.          | 41. 35,8 | 107,4   | I.           | 27. 30,6 | 70,9    | I.            | 49. 58,6 | 15,2    | 8        |
| 23                                                                         | O.          | 43. 23,2 | 106,7   | I.           | 28. 41,5 | 69,1    | I.            | 50. 13,8 | 13,2    | 7        |
| 24                                                                         | O.          | 45. 9,9  | 105,8   | I.           | 29. 50,6 | 67,6    | I.            | 50. 27,0 | 11,2    | 6        |
| 25                                                                         | O.          | 46. 55,7 | 104,9   | I.           | 30. 58,2 | 65,9    | I.            | 50. 38,2 | 9,1     | 5        |
| 26                                                                         | O.          | 48. 40,6 | 104,1   | I.           | 32. 4,1  | 64,1    | I.            | 50. 47,3 | 7,1     | 4        |
| 27                                                                         | O.          | 50. 24,7 | 103,2   | I.           | 33. 8,2  | 62,5    | I.            | 50. 54,4 | 5,1     | 3        |
| 28                                                                         | O.          | 52. 7,9  | 102,2   | I.           | 34. 10,7 | 60,8    | I.            | 50. 59,5 | 3,0     | 2        |
| 29                                                                         | O.          | 53. 50,1 | 101,2   | I.           | 35. 11,5 | 59,0    | I.            | 51. 2,5  | 1,0     | 1        |
| 30                                                                         | O.          | 55. 31,3 |         | I.           | 36. 10,5 |         | I.            | 51. 3,5  |         | 0        |
|                                                                            | Sig. XI. S. |          |         | Sig. X. S.   |          |         | Sig. IX. S.   |          |         |          |
|                                                                            | Sig. V. N.  |          |         | Sig. IV N.   |          |         | Sig. III. N.  |          |         |          |



TABLE XXVI. Reduction to the Ecliptic both in Longitude and for the Radius Vector.

*The Longitude upon the Orbit — the Longitude of the Node.*

| Degrees. | Sig. O. —  | Diff. | Log. | Sig. I. —   | Diff. | Log.  | Sig. II. —   | Diff. | Log.  | Degrees. |
|----------|------------|-------|------|-------------|-------|-------|--------------|-------|-------|----------|
|          | Sig. VI. — |       |      | Sig. VII. — |       |       | Sig. VIII. — |       |       |          |
|          | SEC.       |       |      | SEC.        |       |       | SEC.         |       |       |          |
| 0        | 0,0        |       | 0,0  | 46,6        |       | 56,7  | 46,6         |       | 169,9 | 30       |
| 1        | 1,9        | 1,9   | 0,1  | 47,5        | 0,9   | 60,0  | 45,6         | 1,0   | 173,4 | 29       |
| 2        | 3,8        | 1,9   | 0,3  | 48,3        | 0,8   | 63,6  | 44,6         | 1,0   | 176,3 | 28       |
| 3        | 5,7        | 1,9   | 0,6  | 49,1        | 0,8   | 67,3  | 43,5         | 1,1   | 179,9 | 27       |
| 4        |            | 2,0   |      |             | 0,7   |       |              | 1,1   |       |          |
| 5        | 7,7        | 1,8   | 1,1  | 49,8        | 0,7   | 70,8  | 42,4         | 1,2   | 183,1 | 26       |
| 6        | 9,5        | 1,7   | 1,7  | 50,5        | 0,7   | 74,6  | 41,2         | 1,2   | 186,1 | 25       |
|          | 11,2       |       | 2,5  | 51,1        |       | 78,2  | 40,0         |       | 189,1 | 24       |
| 7        |            | 1,8   |      |             | 0,6   |       |              | 1,3   |       |          |
| 8        | 13,0       | 1,8   | 3,3  | 51,7        | 0,5   | 82,1  | 38,7         | 1,3   | 191,6 | 23       |
| 9        | 14,8       | 1,8   | 4,4  | 52,2        | 0,4   | 85,9  | 37,4         | 1,4   | 194,8 | 22       |
|          | 16,6       |       | 5,5  | 52,6        |       | 89,7  | 36,0         |       | 197,5 | 21       |
| 10       |            | 1,8   |      |             | 0,3   |       |              | 1,4   |       |          |
| 11       | 18,4       | 1,8   | 6,8  | 52,9        | 0,3   | 93,6  | 34,6         | 1,5   | 199,9 | 20       |
| 12       | 20,2       | 1,7   | 8,2  | 53,2        | 0,3   | 97,5  | 33,1         | 1,5   | 202,6 | 19       |
|          | 21,9       |       | 9,8  | 53,5        |       | 101,4 | 31,6         |       | 205,0 | 18       |
| 13       |            | 1,7   |      |             | 0,2   |       |              | 1,5   |       |          |
| 14       | 23,6       | 1,7   | 11,5 | 53,7        | 0,1   | 105,4 | 30,1         | 1,6   | 207,2 | 17       |
| 15       | 25,3       | 1,6   | 13,2 | 53,8        | 0,0   | 109,3 | 28,5         | 1,6   | 209,4 | 16       |
|          | 26,9       |       | 15,2 | 53,8        |       | 113,3 | 26,9         |       | 211,5 | 15       |
| 16       |            | 1,6   |      |             | 0,0   |       |              | 1,6   |       |          |
| 17       | 28,5       | 1,6   | 17,2 | 53,8        | 0,1   | 117,2 | 25,3         | 1,7   | 213,4 | 14       |
| 18       | 30,1       | 1,5   | 19,3 | 53,7        | 0,2   | 121,2 | 23,6         | 1,7   | 215,1 | 13       |
|          | 31,6       |       | 21,7 | 53,5        |       | 125,2 | 21,9         |       | 216,8 | 12       |
| 19       |            | 1,5   |      |             | 0,3   |       |              | 1,7   |       |          |
| 20       | 33,1       | 1,5   | 24,0 | 53,2        | 0,3   | 129,1 | 20,2         | 1,8   | 218,2 | 11       |
| 21       | 34,6       | 1,4   | 26,5 | 52,9        | 0,3   | 133,0 | 18,4         | 1,8   | 219,6 | 10       |
|          | 36,0       |       | 29,1 | 52,6        |       | 136,9 | 16,6         |       | 221,1 | 9        |
| 22       |            | 1,4   |      |             | 0,4   |       |              | 1,8   |       |          |
| 23       | 37,4       | 1,3   | 31,8 | 52,2        | 0,5   | 140,7 | 14,8         | 1,8   | 222,3 | 8        |
| 24       | 38,7       | 1,3   | 34,6 | 51,7        | 0,6   | 144,6 | 13,0         | 1,8   | 223,2 | 7        |
|          | 40,0       |       | 37,5 | 51,1        |       | 148,3 | 11,2         |       | 224,2 | 6        |
| 25       |            | 1,2   |      |             | 0,6   |       |              | 1,7   |       |          |
| 26       | 41,2       | 1,2   | 40,5 | 50,5        | 0,7   | 152,1 | 9,5          | 1,8   | 225,0 | 5        |
| 27       | 42,4       | 1,1   | 43,5 | 49,8        | 0,7   | 155,7 | 7,7          | 2,0   | 225,5 | 4        |
|          | 43,5       |       | 46,7 | 49,1        |       | 159,4 | 5,7          |       | 226,0 | 3        |
| 28       |            | 1,1   |      |             | 0,8   |       |              | 1,9   |       |          |
| 29       | 44,6       | 1,0   | 49,9 | 48,3        | 0,8   | 163,0 | 3,8          | 1,9   | 226,4 | 2        |
| 30       | 45,6       | 1,0   | 53,3 | 47,5        | 0,9   | 166,5 | 1,9          | 1,9   | 226,6 | 1        |
|          | 46,6       |       | 56,7 | 46,6        |       | 169,9 | 0,0          |       | 226,6 | 0        |
|          | Sig. XI. + |       |      | Sig. X. +   |       |       | Sig. IX. +   |       |       |          |
|          | Sig. V. +  |       |      | Sig. IV. +  |       |       | Sig. III. +  |       |       |          |



## TABLES OF JUPITER.

TABLE I. *Epochs of the Mean Longitude of Jupiter, with the Arguments of the Equations.*

|            |      | Mean Long. |     |     |      | Aphelion. |     |     |    | Node. |     |     |    |
|------------|------|------------|-----|-----|------|-----------|-----|-----|----|-------|-----|-----|----|
| YEARS.     |      | S.         | D.  | M.  | S.   | S.        | D.  | M.  | S. | S.    | D.  | M.  | S. |
| Nat. J. C. | 0    | 4.         | 29. | 32. | 41,8 | 5.        | 12. | 46. | 27 | 2.    | 20. | 33. | 8  |
|            | 100  | 10.        | 5.  | 50. | 15,0 | 5.        | 14. | 21. | 0  | 2.    | 21. | 32. | 38 |
|            | 1400 | 5.         | 27. | 38. | 26,4 | 6.        | 4.  | 50. | 10 | 3.    | 4.  | 26. | 8  |
|            | 1500 | 11.        | 3.  | 55. | 59,6 | 6.        | 6.  | 24. | 43 | 3.    | 5.  | 25. | 38 |
| B. N. S.   | 1600 | 4.         | 9.  | 23. | 40,2 | 6.        | 7.  | 59. | 14 | 3.    | 6.  | 25. | 7  |
| C.         | 1700 | 9.         | 15. | 36. | 14,2 | 6.        | 9.  | 33. | 47 | 3.    | 7.  | 24. | 37 |
| B.         | 1740 | 2.         | 0.  | 7.  | 15,3 | 6.        | 10. | 11. | 37 | 3.    | 7.  | 48. | 25 |
| B.         | 1760 | 10.        | 7.  | 22. | 46,0 | 6.        | 10. | 30. | 31 | 3.    | 8.  | 0.  | 19 |
| B.         | 1780 | 6.         | 14. | 38. | 16,6 | 6.        | 10. | 49. | 26 | 3.    | 8.  | 12. | 13 |
| B.         | 1786 | 0.         | 16. | 46. | 26,3 | 6.        | 10. | 55. | 6  | 3.    | 8.  | 15. | 47 |
|            | 1787 | 1.         | 17. | 6.  | 58,0 | 6.        | 10. | 56. | 3  | 3.    | 8.  | 16. | 23 |
|            | 1788 | 2.         | 17. | 32. | 28,9 | 6.        | 10. | 57. | 0  | 3.    | 8.  | 16. | 59 |
|            | 1789 | 3.         | 17. | 53. | 0,6  | 6.        | 10. | 57. | 57 | 3.    | 8.  | 17. | 34 |
|            | 1790 | 4.         | 18. | 13. | 32,4 | 6.        | 10. | 58. | 54 | 3.    | 8.  | 18. | 10 |
| B.         | 1791 | 5.         | 18. | 34. | 4,1  | 6.        | 10. | 59. | 50 | 3.    | 8.  | 18. | 46 |
|            | 1792 | 6.         | 18. | 59. | 35,0 | 6.        | 11. | 0.  | 47 | 3.    | 8.  | 19. | 21 |
|            | 1793 | 7.         | 19. | 20. | 6,8  | 6.        | 11. | 1.  | 44 | 3.    | 8.  | 19. | 57 |
|            | 1794 | 8.         | 19. | 40. | 38,5 | 6.        | 11. | 2.  | 41 | 3.    | 8.  | 20. | 33 |
|            | 1795 | 9.         | 20. | 1.  | 10,2 | 6.        | 11. | 3.  | 37 | 3.    | 8.  | 21. | 9  |
| B.         | 1796 | 10.        | 20. | 26. | 41,1 | 6.        | 11. | 4.  | 34 | 3.    | 8.  | 21. | 44 |
|            | 1797 | 11.        | 20. | 47. | 12,9 | 6.        | 11. | 5.  | 31 | 3.    | 8.  | 22. | 20 |
|            | 1798 | 0.         | 21. | 7.  | 44,6 | 6.        | 11. | 6.  | 28 | 3.    | 8.  | 22. | 56 |
|            | 1799 | 1.         | 21. | 28. | 16,4 | 6.        | 11. | 7.  | 24 | 3.    | 8.  | 23. | 31 |
|            | 1800 | 2.         | 21. | 48. | 48,1 | 6.        | 11. | 8.  | 21 | 3.    | 8.  | 24. | 7  |
| B.         | 1801 | 3.         | 22. | 9.  | 19,9 | 6.        | 11. | 9.  | 18 | 3.    | 8.  | 24. | 43 |
|            | 1802 | 4.         | 22. | 29. | 51,6 | 6.        | 11. | 10. | 14 | 3.    | 8.  | 25. | 18 |
|            | 1803 | 5.         | 22. | 50. | 23,4 | 6.        | 11. | 11. | 11 | 3.    | 8.  | 25. | 54 |
|            | 1804 | 6.         | 23. | 15. | 54,3 | 6.        | 11. | 12. | 8  | 3.    | 8.  | 26. | 30 |
|            | 1805 | 7.         | 23. | 36. | 26,0 | 6.        | 11. | 13. | 5  | 3.    | 8.  | 27. | 6  |
| B.         | 1806 | 8.         | 23. | 56. | 57,8 | 6.        | 11. | 14. | 1  | 3.    | 8.  | 27. | 41 |
|            | 1807 | 9.         | 24. | 17. | 29,5 | 6.        | 11. | 14. | 58 | 3.    | 8.  | 28. | 17 |
|            | 1808 | 10.        | 24. | 43. | 0,4  | 6.        | 11. | 15. | 55 | 3.    | 8.  | 28. | 53 |
|            | 1809 | 11.        | 25. | 3.  | 32,2 | 6.        | 11. | 16. | 52 | 3.    | 8.  | 29. | 28 |
|            | 1810 | 0.         | 25. | 24. | 3,9  | 6.        | 11. | 17. | 48 | 3.    | 8.  | 30. | 4  |
| B.         | 1811 | 1.         | 25. | 44. | 35,7 | 6.        | 11. | 18. | 45 | 3.    | 8.  | 30. | 40 |
|            | 1812 | 2.         | 26. | 10. | 6,5  | 6.        | 11. | 19. | 42 | 3.    | 8.  | 31. | 15 |
|            | 1813 | 3.         | 26. | 30. | 38,2 | 6.        | 11. | 20. | 39 | 3.    | 8.  | 31. | 51 |
|            | 1814 | 4.         | 26. | 51. | 10,0 | 6.        | 11. | 21. | 35 | 3.    | 8.  | 32. | 26 |
|            | 1815 | 5.         | 27. | 11. | 41,7 | 6.        | 11. | 22. | 32 | 3.    | 8.  | 33. | 2  |
| B.         | 1816 | 6.         | 27. | 37. | 12,6 | 6.        | 11. | 23. | 29 | 3.    | 8.  | 33. | 38 |
|            | 1817 | 7.         | 27. | 57. | 44,4 | 6.        | 11. | 24. | 26 | 3.    | 8.  | 34. | 13 |
|            | 1818 | 8.         | 28. | 18. | 16,1 | 6.        | 11. | 25. | 22 | 3.    | 8.  | 34. | 49 |
|            | 1819 | 9.         | 28. | 38. | 47,9 | 6.        | 11. | 26. | 19 | 3.    | 8.  | 35. | 25 |
|            | 1820 | 10.        | 29. | 4.  | 18,8 | 6.        | 11. | 27. | 16 | 3.    | 8.  | 36. | 1  |



# TABLES OF JUPITER.

61

TABLE I. *Epochs of the Mean Longitude of Jupiter, with the Arguments of the Equations.*

| YEARS.        | ARG.<br>H. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|---------------|------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| Nat. J. C. 0  | 2487       | 9957         | 2467        | 2190       | 511         | 981          | 220           | 234         |
| 100           | 2841       | 6374         | 9237        | 5391       | 223         | 482          | 974           | 629         |
| 1400          | 7451       | 9796         | 7270        | 7002       | 473         | 997          | 779           | 762         |
| 1500          | 7806       | 6213         | 4040        | 0203       | 185         | 498          | 533           | 157         |
| B. N. S. 1600 | 8145       | 2626         | 0772        | 3381       | 893         | 995          | 286           | 550         |
| C. 1700       | 8500       | 9043         | 7543        | 6579       | 605         | 495          | 040           | 945         |
| B. 1740       | 8641       | 5610         | 4251        | 9860       | 289         | 896          | 742           | 303         |
| B. 1760       | 8712       | 8893         | 7605        | 6500       | 632         | 596          | 093           | 982         |
| B. 1780       | 8783       | 2177         | 0959        | 3140       | 974         | 296          | 444           | 661         |
| B. 1786       | 1804       | 3162         | 4966        | 8131       | 677         | 406          | 549           | 865         |
| 1787          | 2308       | 3326         | 5633        | 8962       | 794         | 591          | 566           | 899         |
| 1788          | 2812       | 3490         | 6301        | 9796       | 911         | 777          | 584           | 933         |
| 1789          | 3315       | 3654         | 6969        | 0628       | 028         | 961          | 602           | 967         |
| 1790          | 3819       | 3818         | 7636        | 1459       | 145         | 146          | 619           | 001         |
| B. 1791       | 4322       | 3982         | 8304        | 2290       | 262         | 331          | 637           | 034         |
| 1792          | 4826       | 4146         | 8971        | 3124       | 379         | 516          | 654           | 068         |
| 1793          | 5329       | 4310         | 9639        | 3956       | 496         | 701          | 672           | 102         |
| 1794          | 5833       | 4474         | 0307        | 4787       | 614         | 886          | 689           | 136         |
| 1795          | 6337       | 4639         | 0974        | 5618       | 731         | 071          | 707           | 170         |
| B. 1796       | 6840       | 4803         | 1642        | 6452       | 848         | 257          | 724           | 204         |
| 1797          | 7344       | 4967         | 2310        | 7284       | 965         | 441          | 742           | 238         |
| 1798          | 7847       | 5131         | 2977        | 8115       | 082         | 626          | 760           | 272         |
| 1799          | 8351       | 5295         | 3645        | 8946       | 199         | 811          | 777           | 306         |
| C. 1800       | 8854       | 5459         | 4313        | 9778       | 316         | 996          | 795           | 340         |
| B. 1801       | 9358       | 5624         | 4981        | 0609       | 433         | 181          | 812           | 374         |
| 1802          | 9861       | 5788         | 5648        | 1441       | 550         | 366          | 830           | 408         |
| 1803          | 0365       | 5952         | 6316        | 2272       | 668         | 551          | 847           | 442         |
| 1804          | 0868       | 6116         | 6984        | 3106       | 785         | 736          | 865           | 476         |
| 1805          | 1372       | 6280         | 7651        | 3938       | 902         | 921          | 882           | 510         |
| B. 1806       | 1876       | 6444         | 8319        | 4769       | 019         | 106          | 900           | 544         |
| 1807          | 2379       | 6609         | 8987        | 5600       | 136         | 291          | 917           | 578         |
| 1808          | 2883       | 6773         | 9655        | 6434       | 253         | 476          | 935           | 612         |
| 1809          | 3386       | 6937         | 0322        | 7265       | 370         | 661          | 952           | 646         |
| 1810          | 3890       | 7101         | 0990        | 8097       | 487         | 846          | 970           | 680         |
| B. 1811       | 4393       | 7265         | 1658        | 8928       | 605         | 031          | 988           | 713         |
| 1812          | 4897       | 7429         | 2325        | 9762       | 722         | 216          | 005           | 747         |
| 1813          | 5401       | 7593         | 2993        | 0593       | 839         | 401          | 023           | 781         |
| 1814          | 5904       | 7757         | 3660        | 1425       | 956         | 586          | 040           | 815         |
| 1815          | 6408       | 7922         | 4328        | 2256       | 073         | 871          | 058           | 849         |
| B. 1816       | 6911       | 8086         | 4996        | 3090       | 190         | 956          | 075           | 883         |
| 1817          | 7415       | 8250         | 5664        | 3921       | 308         | 141          | 093           | 917         |
| 1818          | 7918       | 8414         | 6331        | 4753       | 425         | 326          | 110           | 951         |
| 1819          | 8422       | 8578         | 6999        | 5584       | 542         | 511          | 128           | 985         |
| B. 1820       | 8925       | 8742         | 7667        | 6418       | 659         | 696          | 145           | 019         |



## TABLES OF JUPITER.

TABLE II. Mean Motion of Jupiter for *Julian Years*, with the Arguments of the Equations.

|             | YEARS. | Mot. in Long. |     |     |      | Mot. Aphelion. |     |     |    | Mot. Node. |     |     |    |
|-------------|--------|---------------|-----|-----|------|----------------|-----|-----|----|------------|-----|-----|----|
|             |        | S.            | D.  | M.  | S.   | S.             | D.  | M.  | S. | S.         | D.  | M.  | S. |
| B.          | 1      | 1.            | 0.  | 20. | 31,7 | 0.             | 0.  | 0.  | 57 | 0.         | 0.  | 0.  | 36 |
|             | 2      | 2.            | 0.  | 41. | 3,5  | 0.             | 0.  | 1.  | 53 | 0.         | 0.  | 1.  | 11 |
|             | 3      | 3.            | 1.  | 1.  | 35,2 | 0.             | 0.  | 2.  | 50 | 0.         | 0.  | 1.  | 47 |
|             | 4      | 4.            | 1.  | 27. | 6,1  | 0.             | 0.  | 3.  | 47 | 0.         | 0.  | 2.  | 23 |
|             | 5      | 5.            | 1.  | 47. | 37,9 | 0.             | 0.  | 4.  | 44 | 0.         | 0.  | 2.  | 58 |
|             | 6      | 6.            | 2.  | 8.  | 9,6  | 0.             | 0.  | 5.  | 40 | 0.         | 0.  | 3.  | 34 |
|             | 7      | 7.            | 2.  | 28. | 41,4 | 0.             | 0.  | 6.  | 37 | 0.         | 0.  | 4.  | 10 |
|             | 8      | 8.            | 2.  | 54. | 12,3 | 0.             | 0.  | 7.  | 34 | 0.         | 0.  | 4.  | 46 |
|             | 9      | 9.            | 3.  | 14. | 44,0 | 0.             | 0.  | 8.  | 31 | 0.         | 0.  | 5.  | 21 |
|             | 10     | 10.           | 3.  | 35. | 15,8 | 0.             | 0.  | 9.  | 27 | 0.         | 0.  | 5.  | 57 |
|             | 11     | 11.           | 3.  | 55. | 47,5 | 0.             | 0.  | 10. | 24 | 0.         | 0.  | 6.  | 33 |
|             | 12     | 0.            | 4.  | 21. | 18,4 | 0.             | 0.  | 11. | 21 | 0.         | 0.  | 7.  | 8  |
|             | 13     | 1.            | 4.  | 41. | 50,1 | 0.             | 0.  | 12. | 18 | 0.         | 0.  | 7.  | 44 |
|             | 14     | 2.            | 5.  | 2.  | 21,9 | 0.             | 0.  | 13. | 14 | 0.         | 0.  | 8.  | 20 |
|             | 15     | 3.            | 5.  | 22. | 53,6 | 0.             | 0.  | 14. | 11 | 0.         | 0.  | 8.  | 56 |
|             | 16     | 4.            | 5.  | 48. | 24,5 | 0.             | 0.  | 15. | 8  | 0.         | 0.  | 9.  | 31 |
|             | 17     | 5.            | 6.  | 8.  | 56,3 | 0.             | 0.  | 16. | 4  | 0.         | 0.  | 10. | 7  |
|             | 18     | 6.            | 6.  | 29. | 28,0 | 0.             | 0.  | 17. | 1  | 0.         | 0.  | 10. | 43 |
|             | 19     | 7.            | 6.  | 49. | 59,8 | 0.             | 0.  | 17. | 58 | 0.         | 0.  | 11. | 18 |
|             | 20     | 8.            | 7.  | 15. | 30,6 | 0.             | 0.  | 18. | 55 | 0.         | 0.  | 11. | 54 |
| Bifextiles. | 40     | 4.            | 14. | 31. | 1,3  | 0.             | 0.  | 37. | 49 | 0.         | 0.  | 23. | 48 |
|             | 60     | 0.            | 21. | 46. | 31,9 | 0.             | 0.  | 56. | 44 | 0.         | 0.  | 35. | 42 |
|             | 80     | 8.            | 29. | 2.  | 2,5  | 0.             | 1.  | 15. | 38 | 0.         | 0.  | 47. | 36 |
|             | 100    | 5.            | 6.  | 17. | 33,2 | 0.             | 1.  | 34. | 33 | 0.         | 0.  | 59. | 30 |
|             | 200    | 10.           | 12. | 35. | 6,4  | 0.             | 3.  | 9.  | 6  | 0.         | 1.  | 59. | 0  |
|             | 300    | 3.            | 18. | 52. | 39,6 | 0.             | 4.  | 43. | 39 | 0.         | 2.  | 58. | 30 |
|             | 400    | 8.            | 25. | 10. | 12,7 | 0.             | 6.  | 18. | 12 | 0.         | 3.  | 58. | 0  |
|             | 500    | 2.            | 1.  | 27. | 45,9 | 0.             | 7.  | 52. | 45 | 0.         | 4.  | 57. | 30 |
|             | 600    | 7.            | 7.  | 45. | 19,1 | 0.             | 9.  | 27. | 19 | 0.         | 5.  | 57. | 0  |
|             | 700    | 0.            | 14. | 2.  | 52,3 | 0.             | 11. | 1.  | 52 | 0.         | 6.  | 56. | 30 |
|             | 800    | 5.            | 20. | 20. | 25,5 | 0.             | 12. | 36. | 25 | 0.         | 7.  | 56. | 0  |
|             | 900    | 10.           | 26. | 37. | 58,7 | 0.             | 14. | 10. | 58 | 0.         | 8.  | 55. | 30 |
|             | 1000   | 4.            | 2.  | 55. | 31,8 | 0.             | 15. | 45. | 31 | 0.         | 9.  | 55. | 0  |
|             | 2000   | 8.            | 5.  | 51. | 3,7  | 1.             | 1.  | 31. | 2  | 0.         | 19. | 50. | 0  |
|             | 3000   | 0.            | 8.  | 46. | 35,5 | 1.             | 17. | 16. | 33 | 0.         | 29. | 45. | 0  |
|             | 4000   | 4.            | 11. | 42. | 7,4  | 2.             | 3.  | 2.  | 4  | 1.         | 9.  | 49. | 0  |
|             | 5000   | 8.            | 14. | 37. | 39,2 | 2.             | 18. | 47. | 35 | 1.         | 19. | 35. | 0  |
|             | 6000   | 0.            | 17. | 33. | 11,0 | 3.             | 4.  | 33. | 6  | 1.         | 29. | 30. | 0  |
|             | 7000   | 4.            | 11. | 42. | 7,4  | 2.             | 3.  | 2.  | 4  | 1.         | 9.  | 49. | 0  |
|             | 8000   | 8.            | 14. | 37. | 39,2 | 2.             | 18. | 47. | 35 | 1.         | 19. | 35. | 0  |
|             | 9000   | 0.            | 17. | 33. | 11,0 | 3.             | 4.  | 33. | 6  | 1.         | 29. | 30. | 0  |



TABLE II. Mean Motion of Jupiter for *Julian Years*, with the Arguments of the Equations.

| YEARS. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. | ARG.<br>IX. |
|--------|-------------|--------------|-------------|------------|-------------|--------------|---------------|-------------|
| 1      | 0504        | 0164         | 0668        | 0831       | 117         | 185          | 018           | 034         |
| 2      | 1007        | 0328         | 1335        | 1663       | 234         | 370          | 035           | 068         |
| 3      | 1511        | 0493         | 2003        | 2494       | 351         | 555          | 053           | 102         |
| B. 4   | 2014        | 0657         | 2671        | 3328       | 468         | 740          | 070           | 136         |
| 5      | 2518        | 0821         | 3339        | 4159       | 586         | 925          | 088           | 170         |
| 6      | 3021        | 0985         | 4006        | 4991       | 703         | 110          | 105           | 204         |
| 7      | 3525        | 1149         | 4674        | 5822       | 820         | 295          | 123           | 238         |
| B. 8   | 4028        | 1313         | 5342        | 6656       | 937         | 480          | 140           | 272         |
| 9      | 4532        | 1478         | 6009        | 7488       | 054         | 665          | 158           | 306         |
| 10     | 5035        | 1642         | 6677        | 8319       | 171         | 850          | 175           | 339         |
| 11     | 5539        | 1806         | 7345        | 9150       | 288         | 035          | 193           | 373         |
| B. 12  | 6043        | 1970         | 8012        | 9984       | 405         | 220          | 210           | 407         |
| 13     | 6546        | 2134         | 8680        | 0816       | 523         | 405          | 228           | 441         |
| 14     | 7050        | 2298         | 9348        | 1647       | 640         | 590          | 245           | 475         |
| 15     | 7553        | 2463         | 0016        | 2478       | 757         | 775          | 263           | 509         |
| B. 16  | 8057        | 2627         | 0683        | 3312       | 874         | 960          | 281           | 543         |
| 17     | 8560        | 2791         | 1351        | 4144       | 991         | 145          | 298           | 577         |
| 18     | 9064        | 2955         | 2019        | 4975       | 108         | 330          | 316           | 611         |
| 19     | 9567        | 3119         | 2686        | 5806       | 225         | 515          | 333           | 645         |
| B. 20  | 0071        | 3283         | 3354        | 6640       | 342         | 700          | 351           | 679         |
| 40     | 0142        | 6567         | 6708        | 3280       | 685         | 400          | 702           | 358         |
| 60     | 0213        | 9850         | 0062        | 9920       | 027         | 101          | 052           | 037         |
| 80     | 0284        | 3134         | 3416        | 6561       | 369         | 801          | 403           | 716         |
| 100    | 0355        | 6417         | 6770        | 3201       | 712         | 501          | 754           | 395         |
| 200    | 0709        | 2834         | 3541        | 6402       | 423         | 002          | 508           | 790         |
| 300    | 1064        | 9251         | 0311        | 9602       | 135         | 504          | 262           | 184         |
| 400    | 1418        | 5668         | 7081        | 2803       | 846         | 005          | 017           | 579         |
| 500    | 1773        | 2085         | 3852        | 6004       | 558         | 506          | 771           | 974         |
| 600    | 2128        | 8502         | 0622        | 5205       | 269         | 007          | 525           | 369         |
| 700    | 2482        | 4920         | 7392        | 2406       | 981         | 508          | 279           | 764         |
| 800    | 2837        | 1337         | 4162        | 5607       | 693         | 010          | 033           | 158         |
| 900    | 3191        | 7754         | 0933        | 8807       | 404         | 511          | 787           | 553         |
| 1000   | 3546        | 4171         | 7703        | 2008       | 116         | 012          | 542           | 948         |
| 2000   | 7092        | 8342         | 5406        | 4017       | 231         | 024          | 083           | 896         |
| 3000   | 0638        | 2513         | 3109        | 6025       | 347         | 036          | 625           | 844         |
| 4000   | 4184        | 6684         | 0812        | 8033       | 463         | 048          | 166           | 792         |
| 5000   | 7730        | 0856         | 8515        | 0042       | 579         | 059          | 708           | 740         |
| 6000   | 1276        | 5027         | 6219        | 2050       | 694         | 071          | 249           | 688         |

Bifextiles.



## TABLES OF JUPITER.

TABLE III. Mean Motion of Jupiter for *Months*, with the Arguments of the Equations.

| <i>Months.</i> | Mot. Long. |     |      | Aphel. | Node. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG.  |
|----------------|------------|-----|------|--------|-------|------|------|------|------|------|------|-------|
|                | D.         | M.  | S.   | SEC.   | SEC.  | II.  | III. | IV.  | V.   | VI.  | VII. | VIII. |
| January        | 0.         | 0.  | 0,0  | 0      | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0     |
| February       | 2.         | 34. | 37,2 | 5      | 3     | 43   | 14   | 57   | 71   | 10   | 16   | 1     |
| March          | 4.         | 54. | 16,6 | 9      | 6     | 81   | 27   | 108  | 134  | 19   | 30   | 3     |
| April          | 7.         | 28. | 53,9 | 14     | 9     | 124  | 41   | 165  | 205  | 29   | 45   | 4     |
| May            | 9.         | 58. | 31,8 | 19     | 12    | 165  | 54   | 219  | 273  | 38   | 61   | 6     |
| June           | 12.        | 33. | 9,0  | 23     | 15    | 208  | 68   | 276  | 344  | 48   | 76   | 7     |
| July           | 15.        | 2.  | 47,0 | 28     | 18    | 250  | 81   | 331  | 412  | 58   | 91   | 9     |
| August         | 17.        | 37. | 24,2 | 33     | 21    | 292  | 95   | 388  | 483  | 68   | 107  | 10    |
| September      | 20.        | 12. | 1,4  | 38     | 24    | 335  | 109  | 444  | 553  | 78   | 123  | 12    |
| October        | 22.        | 41. | 39,4 | 42     | 27    | 376  | 123  | 499  | 622  | 88   | 138  | 13    |
| November       | 25.        | 16. | 16,6 | 47     | 30    | 419  | 137  | 556  | 692  | 97   | 154  | 15    |
| December       | 27.        | 45. | 54,5 | 52     | 33    | 460  | 150  | 611  | 761  | 107  | 169  | 16    |

TABLE IV. Mean Motion of Jupiter for *Hours* and *Minutes*.

| <i>Hours.</i> | Mot. Long. |      | <i>Hours.</i> | Mot. Long. |      | <i>Min.</i> | Mot. Lon. |  | <i>Min.</i> | Mot. Lon. |  |
|---------------|------------|------|---------------|------------|------|-------------|-----------|--|-------------|-----------|--|
|               | M.         | S.   |               | M.         | S.   |             | SEC.      |  |             | SEC.      |  |
| 1             | 0.         | 12,5 | 13            | 2.         | 42,1 | 1           | 0,2       |  | 27          | 5,6       |  |
| 2             | 0.         | 24,9 | 14            | 2.         | 54,6 | 2           | 0,4       |  | 30          | 6,2       |  |
| 3             | 0.         | 37,4 | 15            | 3.         | 7,0  | 3           | 0,6       |  | 33          | 6,9       |  |
| 4             | 0.         | 49,9 | 16            | 3.         | 19,5 | 4           | 0,8       |  | 36          | 7,5       |  |
| 5             | 1.         | 2,3  | 17            | 3.         | 32,0 | 5           | 1,0       |  | 39          | 8,1       |  |
| 6             | 1.         | 14,8 | 18            | 3.         | 44,4 | 6           | 1,2       |  | 42          | 8,7       |  |
| 7             | 1.         | 27,3 | 19            | 3.         | 56,9 | 9           | 1,9       |  | 45          | 9,4       |  |
| 8             | 1.         | 39,8 | 20            | 4.         | 9,4  | 12          | 2,5       |  | 48          | 10,0      |  |
| 9             | 1.         | 52,2 | 21            | 4.         | 21,9 | 15          | 3,1       |  | 51          | 10,6      |  |
| 10            | 2.         | 4,7  | 22            | 4.         | 34,3 | 18          | 3,7       |  | 54          | 11,2      |  |
| 11            | 2.         | 17,2 | 23            | 4.         | 46,8 | 21          | 4,4       |  | 57          | 11,8      |  |
| 12            | 2.         | 29,6 | 24            | 4.         | 59,3 | 24          | 5,0       |  | 60          | 12,5      |  |



TABLE V. Mean Motion of Jupiter for *Days*, with the Arguments of the Equations.

| Days of the Month. | Motion in Longitude. |     |      | Mot. Aphel.<br>SEC. | Mot. Node.<br>SEC. | Arg. II. | Arg. III. | Arg. IV. | Arg. V. | Arg. VI. | Arg. VII. | Arg. VIII. | Arg. IX. |
|--------------------|----------------------|-----|------|---------------------|--------------------|----------|-----------|----------|---------|----------|-----------|------------|----------|
|                    | D.                   | M.  | S.   |                     |                    |          |           |          |         |          |           |            |          |
| 1                  | 0.                   | 4.  | 59,3 | 0                   | 0                  | 1        | 0         | 2        | 2       | 0        | 1         | 0          | 0        |
| 2                  | 0.                   | 9.  | 58,5 | 0                   | 0                  | 3        | 1         | 4        | 5       | 1        | 1         | 0          | 0        |
| 3                  | 0.                   | 14. | 57,8 | 0                   | 0                  | 4        | 1         | 5        | 7       | 1        | 2         | 0          | 0        |
| 4                  | 0.                   | 19. | 57,1 | 1                   | 0                  | 6        | 2         | 7        | 9       | 1        | 2         | 0          | 0        |
| 5                  | 0.                   | 24. | 56,3 | 1                   | 0                  | 7        | 2         | 9        | 11      | 2        | 3         | 0          | 0        |
| 6                  | 0.                   | 29. | 55,6 | 1                   | 1                  | 8        | 3         | 11       | 14      | 2        | 3         | 0          | 1        |
| 7                  | 0.                   | 34. | 54,9 | 1                   | 1                  | 10       | 3         | 13       | 16      | 2        | 4         | 0          | 1        |
| 8                  | 0.                   | 39. | 54,1 | 1                   | 1                  | 11       | 4         | 15       | 18      | 3        | 4         | 0          | 1        |
| 9                  | 0.                   | 44. | 53,4 | 1                   | 1                  | 12       | 4         | 16       | 20      | 3        | 5         | 0          | 1        |
| 10                 | 0.                   | 49. | 52,7 | 2                   | 1                  | 14       | 5         | 18       | 23      | 3        | 5         | 0          | 1        |
| 11                 | 0.                   | 54. | 51,9 | 2                   | 1                  | 15       | 5         | 20       | 25      | 4        | 6         | 1          | 1        |
| 12                 | 0.                   | 59. | 51,2 | 2                   | 1                  | 16       | 5         | 22       | 27      | 4        | 6         | 1          | 1        |
| 13                 | 1.                   | 4.  | 50,4 | 2                   | 1                  | 17       | 6         | 24       | 30      | 4        | 7         | 1          | 1        |
| 14                 | 1.                   | 9.  | 49,7 | 2                   | 1                  | 19       | 6         | 26       | 32      | 4        | 7         | 1          | 1        |
| 15                 | 1.                   | 14. | 49,0 | 2                   | 1                  | 21       | 7         | 27       | 34      | 5        | 8         | 1          | 1        |
| 16                 | 1.                   | 19. | 48,2 | 3                   | 2                  | 22       | 7         | 29       | 36      | 5        | 8         | 1          | 2        |
| 17                 | 1.                   | 24. | 47,5 | 3                   | 2                  | 23       | 8         | 31       | 39      | 5        | 9         | 1          | 2        |
| 18                 | 1.                   | 29. | 46,8 | 3                   | 2                  | 25       | 8         | 33       | 41      | 6        | 9         | 1          | 2        |
| 19                 | 1.                   | 34. | 46,0 | 3                   | 2                  | 26       | 9         | 35       | 43      | 6        | 10        | 1          | 2        |
| 20                 | 1.                   | 39. | 45,3 | 3                   | 2                  | 28       | 9         | 37       | 46      | 6        | 10        | 1          | 2        |
| 21                 | 1.                   | 44. | 44,6 | 3                   | 2                  | 29       | 9         | 38       | 48      | 7        | 11        | 1          | 2        |
| 22                 | 1.                   | 49. | 43,8 | 3                   | 2                  | 30       | 10        | 40       | 50      | 7        | 11        | 1          | 2        |
| 23                 | 1.                   | 54. | 43,1 | 4                   | 2                  | 32       | 10        | 42       | 52      | 7        | 12        | 1          | 2        |
| 24                 | 1.                   | 59. | 42,4 | 4                   | 2                  | 33       | 11        | 44       | 55      | 8        | 12        | 1          | 2        |
| 25                 | 2.                   | 4.  | 41,6 | 4                   | 2                  | 35       | 11        | 46       | 57      | 8        | 13        | 1          | 2        |
| 26                 | 2.                   | 9.  | 40,9 | 4                   | 3                  | 36       | 12        | 48       | 59      | 8        | 13        | 1          | 2        |
| 27                 | 2.                   | 14. | 40,2 | 4                   | 3                  | 37       | 12        | 49       | 61      | 9        | 14        | 1          | 3        |
| 28                 | 2.                   | 19. | 39,4 | 4                   | 3                  | 39       | 13        | 51       | 64      | 9        | 14        | 1          | 3        |
| 29                 | 2.                   | 24. | 38,7 | 5                   | 3                  | 40       | 13        | 53       | 66      | 9        | 15        | 1          | 3        |
| 30                 | 2.                   | 29. | 38,0 | 5                   | 3                  | 41       | 13        | 55       | 68      | 10       | 15        | 1          | 3        |
| 31                 | 2.                   | 34. | 37,2 | 5                   | 3                  | 43       | 14        | 57       | 71      | 10       | 16        | 1          | 3        |

In the Months JANUARY and FEBRUARY of a Bissextile Year, subtract 1 from the given Day of the Month.



TABLE VI. The great Inequality of the Motion of Jupiter, with the Corrections of the Arguments which regulate the other Inequalities.

| Years. | Equations. | Diff. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG.  | ARG. |
|--------|------------|-------|------|------|------|------|------|------|-------|------|
|        | M. S.      | SEC.  | II.  | III. | IV.  | V.   | VI.  | VII. | VIII. | IX.  |
| 1550   | - 1. 18,5  | 86,2  | -2   | -3   | -5   | -9   | -1   | -0   | +0    | +0   |
| 1560   | + 0. 7,7   | 86,0  | +0   | +0   | +0   | +1   | +0   | +0   | -0    | -0   |
| 1570   | 1. 33,7    | 85,4  | 2    | 4    | 6    | 11   | 1    | 1    | -1    | 0    |
| 1580   | 2. 59,1    | 84,6  | 5    | 8    | 12   | 18   | 2    | 1    | -1    | 0    |
| 1590   | 4. 23,7    | 83,3  | 7    | 12   | 18   | 30   | 3    | 2    | -2    | 0    |
| 1600   | 5. 47,0    | 81,6  | 9    | 15   | 24   | 39   | 3    | 2    | -2    | -1   |
| 1610   | 7. 8,6     | 79,6  | 11   | 19   | 30   | 49   | 4    | 3    | -3    | -1   |
| 1620   | 8. 28,2    | 77,1  | 13   | 22   | 35   | 58   | 5    | 3    | -3    | -1   |
| 1630   | 9. 45,3    | 74,3  | 15   | 27   | 41   | 66   | 6    | 3    | -4    | -1   |
| 1640   | 10. 59,6   | 71,2  | 17   | 29   | 46   | 75   | 6    | 4    | -4    | -1   |
| 1650   | 12. 10,8   | 67,7  | 19   | 32   | 51   | 83   | 7    | 4    | -4    | -1   |
| 1660   | 13. 18,5   | 63,9  | 21   | 35   | 56   | 91   | 8    | 5    | -5    | -1   |
| 1670   | 14. 22,4   | 59,9  | 22   | 38   | 60   | 98   | 8    | 5    | -5    | -2   |
| 1680   | 15. 22,3   | 55,4  | 24   | 40   | 64   | 105  | 9    | 5    | -6    | -2   |
| 1690   | 16. 17,7   | 50,9  | 25   | 43   | 68   | 111  | 9    | 6    | -6    | -2   |
| 1700   | 17. 8,6    | 46,0  | 27   | 45   | 72   | 117  | 10   | 6    | -6    | -2   |
| 1710   | 17. 54,6   | 41,0  | 28   | 47   | 75   | 122  | 10   | 6    | -7    | -2   |
| 1720   | 18. 35,6   | 35,6  | 29   | 49   | 78   | 127  | 11   | 7    | -7    | -2   |
| 1730   | 19. 11,2   | 30,3  | 30   | 50   | 80   | 131  | 11   | 7    | -7    | -2   |
| 1740   | 19. 41,5   | 24,7  | 30   | 52   | 82   | 134  | 11   | 7    | -7    | -2   |
| 1750   | 20. 6,2    | 19,1  | 31   | 53   | 84   | 137  | 12   | 7    | -7    | -2   |
| 1760   | 20. 25,3   | 13,3  | 32   | 54   | 85   | 139  | 12   | 7    | -8    | -2   |
| 1770   | 20. 38,6   | 7,4   | 32   | 54   | 86   | 141  | 12   | 7    | -8    | -2   |
| 1780   | 20. 46,0   | 1,7   | 32   | 55   | 87   | 141  | 12   | 7    | -8    | -2   |
| 1790   | +20. 47,7  |       | 32   | 55   | 87   | 142  | 12   | 7    | -8    | -2   |



TABLE VI. The great Inequality of the Motion of Jupiter, with the Corrections of the Arguments which regulate the other Inequalities.

| Years. | Equation. | Diff. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG. | ARG.  | ARG. |
|--------|-----------|-------|------|------|------|------|------|------|-------|------|
|        | M. S.     | SEC.  | II.  | III. | IV.  | V.   | VI.  | VII. | VIII. | IX.  |
| 1790   | +20. 47,7 | -4,2  | +32  | +55  | +87  | +142 | +12  | +7   | -8    | -2   |
| 1800   | 20. 43,5  | 10,0  | 32   | 54   | 87   | 141  | 12   | 7    | -8    | -2   |
| 1810   | 20. 33,5  | 15,8  | 32   | 54   | 86   | 140  | 12   | 7    | -8    | -2   |
| 1820   | 20. 17,7  | 21,5  | 31   | 53   | 85   | 138  | 12   | 7    | -7    | -2   |
| 1830   | 19. 56,2  | 27,1  | 31   | 52   | 83   | 136  | 11   | 7    | -7    | -2   |
| 1840   | 19. 29,1  | 32,5  | 30   | 51   | 81   | 133  | 11   | 7    | -7    | -2   |
| 1850   | 18. 56,6  | 37,8  | 29   | 50   | 79   | 129  | 11   | 7    | -7    | -2   |
| 1860   | 18. 18,8  | 42,9  | 28   | 48   | 77   | 125  | 10   | 6    | -7    | -2   |
| 1870   | 17. 35,9  | 47,9  | 27   | 46   | 74   | 120  | 10   | 6    | -6    | -2   |
| 1880   | 16. 48,0  | 52,7  | 26   | 44   | 70   | 114  | 10   | 6    | -6    | -2   |
| 1890   | 15. 55,3  | 56,9  | 25   | 42   | 67   | 109  | 9    | 6    | -6    | -2   |
| 1900   | 14. 58,4  | 61,1  | 23   | 39   | 62   | 102  | 9    | 5    | -5    | -2   |
| 1910   | 13. 57,3  | 65,1  | 22   | 37   | 58   | 95   | 8    | 5    | -5    | -2   |
| 1920   | 12. 52,2  | 68,6  | 20   | 34   | 54   | 88   | 7    | 5    | -5    | -2   |
| 1930   | 11. 43,6  | 71,8  | 18   | 31   | 49   | 80   | 7    | 4    | -4    | -1   |
| 1940   | 10. 31,8  | 74,8  | 16   | 28   | 44   | 72   | 6    | 4    | -4    | -1   |
| 1950   | 9. 17,0   | 77,3  | 14   | 25   | 39   | 64   | 5    | 3    | -3    | -1   |
| 1960   | 7. 59,7   | 79,5  | 12   | 21   | 33   | 54   | 5    | 3    | -3    | -1   |
| 1970   | 6. 40,2   | 81,4  | 10   | 18   | 28   | 45   | 4    | 2    | -2    | -1   |
| 1980   | 5. 18,8   | 82,8  | 8    | 14   | 22   | 36   | 3    | 2    | -2    | -1   |
| 1990   | 3. 56,0   | 83,8  | 6    | 10   | 16   | 27   | 2    | 1    | -1    | -0   |
| 2000   | 2. 32,2   | 84,5  | 4    | 7    | 10   | 17   | 1    | 1    | -1    | -0   |
| 2010   | +1. 7,7   | 84,7  | +2   | +3   | +5   | +8   | +1   | +0   | -0    | -0   |
| 2020   | -0. 17,0  |       | -0   | -1   | -1   | -2   | -0   | -0   | +0    | +0   |



TABLE VII. Equation of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT. <i>Long. &amp; cor. by Tab. VI. — Aphelion, or mean Anomaly.</i> |               |         |           |              |         |           |          |
|----------------------------------------------------------------------------|---------------|---------|-----------|--------------|---------|-----------|----------|
| Degrees.                                                                   | Sig. O.       |         |           | Sig. I.      |         |           | Degrees. |
|                                                                            | Equation.     | Diff.   | Sec. Var. | Equation.    | Diff.   | Sec. Var. |          |
|                                                                            | —             | —       | —         | —            | —       | —         |          |
|                                                                            | D. M. S.      | M. S.   | SEC.      | D. M. S.     | M. S.   | SEC.      |          |
| 0                                                                          | 0. 0. 0,0     |         | 0,00      | 2. 37. 1,8   | 4. 48,1 | 25,00     | 30       |
| 1                                                                          | 0. 5. 26,5    | 5. 26,5 | 0,86      | 2. 41. 49,9  | 4. 45,5 | 25,79     | 29       |
| 2                                                                          | 0. 10. 52,9   | 5. 26,2 | 1,72      | 2. 46. 35,4  | 4. 43,0 | 26,55     | 28       |
| 3                                                                          | 0. 16. 19,1   | 5. 26,0 | 2,58      | 2. 51. 18,4  | 4. 40,3 | 27,31     | 27       |
| 4                                                                          | 0. 21. 45,1   | 5. 25,6 | 3,44      | 2. 55. 58,7  | 4. 37,5 | 28,08     | 26       |
| 5                                                                          | 0. 27. 10,7   | 5. 25,2 | 4,31      | 3. 0. 36,2   | 4. 34,6 | 28,83     | 25       |
| 6                                                                          | 0. 32. 35,9   | 5. 24,7 | 5,16      | 3. 5. 10,8   | 4. 31,7 | 29,57     | 24       |
| 7                                                                          | 0. 38. 0,6    | 5. 24,2 | 6,01      | 3. 9. 42,5   | 4. 28,7 | 30,32     | 23       |
| 8                                                                          | 0. 43. 24,8   | 5. 23,5 | 6,88      | 3. 14. 11,2  | 4. 25,6 | 31,04     | 22       |
| 9                                                                          | 0. 48. 48,3   | 5. 22,7 | 7,73      | 3. 18. 36,8  | 4. 22,6 | 31,77     | 21       |
| 10                                                                         | 0. 54. 11,0   | 5. 21,9 | 8,57      | 3. 22. 59,4  | 4. 19,3 | 32,48     | 20       |
| 11                                                                         | 0. 59. 32,9   | 5. 21,0 | 9,42      | 3. 27. 18,7  | 4. 16,0 | 33,20     | 19       |
| 12                                                                         | 1. 4. 53,9    | 5. 20,1 | 10,27     | 3. 31. 34,7  | 4. 12,6 | 33,90     | 18       |
| 13                                                                         | 1. 10. 14,0   | 5. 18,9 | 11,12     | 3. 35. 47,3  | 4. 9,2  | 34,60     | 17       |
| 14                                                                         | 1. 15. 32,9   | 5. 17,6 | 11,97     | 3. 39. 56,5  | 4. 5,6  | 35,29     | 16       |
| 15                                                                         | 1. 20. 50,5   | 5. 16,5 | 12,81     | 3. 44. 2,1   | 4. 2,0  | 35,97     | 15       |
| 16                                                                         | 1. 26. 7,0    | 5. 15,3 | 13,65     | 3. 48. 4,1   | 3. 58,4 | 36,63     | 14       |
| 17                                                                         | 1. 31. 22,3   | 5. 13,8 | 14,49     | 3. 52. 2,5   | 3. 54,8 | 37,30     | 13       |
| 18                                                                         | 1. 36. 36,1   | 5. 12,2 | 15,32     | 3. 55. 57,3  | 3. 50,8 | 37,95     | 12       |
| 19                                                                         | 1. 41. 48,3   | 5. 10,7 | 16,15     | 3. 59. 48,1  | 3. 46,9 | 38,59     | 11       |
| 20                                                                         | 1. 46. 59,0   | 5. 9,0  | 16,98     | 4. 3. 35,0   | 3. 43,0 | 39,23     | 10       |
| 21                                                                         | 1. 52. 8,0    | 5. 7,4  | 17,80     | 4. 7. 18,0   | 3. 39,0 | 39,86     | 9        |
| 22                                                                         | 1. 57. 15,4   | 5. 5,5  | 18,62     | 4. 10. 57,0  | 3. 34,9 | 40,49     | 8        |
| 23                                                                         | 2. 2. 20,9    | 5. 3,6  | 19,43     | 4. 14. 31,9  | 3. 30,7 | 41,08     | 7        |
| 24                                                                         | 2. 7. 24,5    | 5. 1,6  | 20,24     | 4. 18. 2,6   | 3. 26,5 | 41,68     | 6        |
| 25                                                                         | 2. 12. 26,1   | 4. 59,6 | 21,05     | 4. 21. 29,1  | 3. 22,3 | 42,27     | 5        |
| 26                                                                         | 2. 17. 25,7   | 4. 57,4 | 21,85     | 4. 24. 51,4  | 3. 17,9 | 42,85     | 4        |
| 27                                                                         | 2. 22. 23,1   | 4. 55,2 | 22,65     | 4. 28. 9,3   | 3. 13,5 | 43,41     | 3        |
| 28                                                                         | 2. 27. 18,3   | 4. 52,9 | 23,44     | 4. 31. 22,8  | 3. 9,0  | 43,97     | 2        |
| 29                                                                         | 2. 32. 11,2   | 4. 50,6 | 24,22     | 4. 34. 31,8  | 3. 4,5  | 44,52     | 1        |
| 30                                                                         | 2. 37. 1,8    |         | 25,00     | 4. 37. 36,3  |         | 45,06     | 0        |
|                                                                            | +<br>Sig. XI. |         | +         | +<br>Sig. X. |         | +         |          |



TABLE VII. Equation of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT. <i>Long. &amp; cor. by Tab. VI.—Aphelion, or mean Anomaly.</i> |               |         |           |                 |         |           |          |  |  |
|--------------------------------------------------------------------------|---------------|---------|-----------|-----------------|---------|-----------|----------|--|--|
| Degrees.                                                                 | Sig. II.      |         |           | Sig. III.       |         |           | Degrees. |  |  |
|                                                                          | Equation.     | Diff.   | Sec. Var. | Equation.       | Diff.   | Sec. Var. |          |  |  |
|                                                                          | —             |         | —         | —               |         | —         |          |  |  |
|                                                                          | D. M. S.      | M. S.   | SEC.      | D. M. S.        | M. S.   | SEC.      |          |  |  |
| 0                                                                        | 4. 37. 36,3   | 2. 59,8 | 45,06     | 5. 30. 2,6      | 0. 17,7 | 55,15     | 30       |  |  |
| 1                                                                        | 4. 40. 36,1   | 2. 55,2 | 45,58     | 5. 30. 20,3     | 0. 11,7 | 55,26     | 29       |  |  |
| 2                                                                        | 4. 43. 31,3   | 2. 50,5 | 46,10     | 5. 30. 32,0     | +0. 5,7 | 55,35     | 28       |  |  |
| 3                                                                        | 4. 46. 21,8   | 2. 45,7 | 46,61     | 5. 30. 37,7     | —0. 0,3 | 55,43     | 27       |  |  |
| 4                                                                        | 4. 49. 7,5    | 2. 40,8 | 47,09     | 5. 30. 37,4     | 0. 6,4  | 55,48     | 26       |  |  |
| 5                                                                        | 4. 51. 48,3   | 2. 35,9 | 47,57     | 5. 30. 31,0     | 0. 12,5 | 55,52     | 25       |  |  |
| 6                                                                        | 4. 54. 24,2   | 2. 30,9 | 48,03     | 5. 30. 18,5     | 0. 18,6 | 55,55     | 24       |  |  |
| 7                                                                        | 4. 56. 55,1   | 2. 25,9 | 48,49     | 5. 29. 59,9     | 0. 24,6 | 55,56     | 23       |  |  |
| 8                                                                        | 4. 59. 21,0   | 2. 20,9 | 48,94     | 5. 29. 35,3     | 0. 30,6 | 55,55     | 22       |  |  |
| 9                                                                        | 5. 1. 41,9    | 2. 15,7 | 49,37     | 5. 29. 4,5      | 0. 37,0 | 55,52     | 21       |  |  |
| 10                                                                       | 5. 3. 57,6    | 2. 10,6 | 49,78     | 5. 28. 27,5     | 0. 43,0 | 55,48     | 20       |  |  |
| 11                                                                       | 5. 6. 8,2     | 2. 5,3  | 50,18     | 5. 27. 44,5     | 0. 49,1 | 55,41     | 19       |  |  |
| 12                                                                       | 5. 8. 13,5    | 2. 0,0  | 50,57     | 5. 26. 55,4     | 0. 55,3 | 55,33     | 18       |  |  |
| 13                                                                       | 5. 10. 13,5   | 1. 54,7 | 50,95     | 5. 26. 0,1      | 1. 1,6  | 55,24     | 17       |  |  |
| 14                                                                       | 5. 12. 8,2    | 1. 49,3 | 51,31     | 5. 44. 58,5     | 1. 7,6  | 55,11     | 16       |  |  |
| 15                                                                       | 5. 13. 57,5   | 1. 43,9 | 51,65     | 5. 23. 50,9     | 1. 13,8 | 54,99     | 15       |  |  |
| 16                                                                       | 5. 15. 41,4   | 1. 38,4 | 51,99     | 5. 22. 37,1     | 1. 19,8 | 54,85     | 14       |  |  |
| 17                                                                       | 5. 17. 19,8   | 1. 32,9 | 52,32     | 5. 21. 17,3     | 1. 26,0 | 54,67     | 13       |  |  |
| 18                                                                       | 5. 18. 52,7   | 1. 27,3 | 52,62     | 5. 19. 51,3     | 1. 32,2 | 54,49     | 12       |  |  |
| 19                                                                       | 5. 20. 20,0   | 1. 21,8 | 52,91     | 5. 18. 19,1     | 1. 38,3 | 54,28     | 11       |  |  |
| 20                                                                       | 5. 21. 41,8   | 1. 16,1 | 53,20     | 5. 16. 40,8     | 1. 44,4 | 54,06     | 10       |  |  |
| 21                                                                       | 5. 22. 57,9   | 1. 10,4 | 53,46     | 5. 14. 56,4     | 1. 50,5 | 53,81     | 9        |  |  |
| 22                                                                       | 5. 24. 8,3    | 1. 4,7  | 53,71     | 5. 13. 5,9      | 1. 56,5 | 53,56     | 8        |  |  |
| 23                                                                       | 5. 25. 13,0   | 0. 58,9 | 53,94     | 5. 11. 9,4      | 2. 2,6  | 53,29     | 7        |  |  |
| 24                                                                       | 5. 26. 11,9   | 0. 53,1 | 54,17     | 5. 9. 6,8       | 2. 8,6  | 52,99     | 6        |  |  |
| 25                                                                       | 5. 27. 5,0    | 0. 47,3 | 54,38     | 5. 6. 58,2      | 2. 14,7 | 52,67     | 5        |  |  |
| 26                                                                       | 5. 27. 52,3   | 0. 41,4 | 54,56     | 5. 4. 43,5      | 2. 20,5 | 52,35     | 4        |  |  |
| 27                                                                       | 5. 28. 33,7   | 0. 35,5 | 54,73     | 5. 2. 23,0      | 2. 26,6 | 51,99     | 3        |  |  |
| 28                                                                       | 5. 29. 9,2    | 0. 29,7 | 54,89     | 4. 59. 56,4     | 2. 32,5 | 51,62     | 2        |  |  |
| 29                                                                       | 5. 29. 38,9   | 0. 23,7 | 55,02     | 4. 57. 23,9     | 2. 38,3 | 51,22     | 1        |  |  |
| 30                                                                       | 5. 30. 2,6    |         | 55,15     | 4. 54. 45,6     |         | 50,82     | 0        |  |  |
|                                                                          | +<br>Sig. IX. |         | +         | +<br>Sig. VIII. |         | +         |          |  |  |



## TABLES OF JUPITER.

TABLE VII. Equation of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT. Long. $\psi$ cor. by Tab. VI.—Aphelion, or mean Anomaly. |                |         |           |               |         |           |          |
|--------------------------------------------------------------------|----------------|---------|-----------|---------------|---------|-----------|----------|
| Degrees.                                                           | Sig. IV.       |         |           | Sig. V.       |         |           | Degrees. |
|                                                                    | Equation.      | Diff.   | Sec. Var. | Equation.     | Diff.   | Sec. Var. |          |
|                                                                    | —              |         | —         | —             |         | —         |          |
|                                                                    | D. M. S.       | M. S.   | SEC.      | D. M. S.      | M. S.   | SEC.      |          |
| 0                                                                  | 4. 54. 45,6    | 2. 44,2 | 50,75     | 2. 54. 15,1   | 5. 11,8 | 30,78     | 30       |
| 1                                                                  | 4. 52. 1,4     | 2. 50,1 | 50,40     | 2. 49. 3,3    | 5. 15,5 | 29,88     | 29       |
| 2                                                                  | 4. 49. 11,3    | 2. 55,8 | 49,97     | 2. 43. 47,8   | 5. 19,0 | 28,96     | 28       |
| 3                                                                  | 4. 46. 15,5    | 3. 1,5  | 49,51     | 2. 38. 28,8   | 5. 22,4 | 28,03     | 27       |
| 4                                                                  | 4. 43. 14,0    | 3. 7,3  | 49,03     | 2. 33. 6,4    | 5. 25,7 | 27,09     | 26       |
| 5                                                                  | 4. 40. 6,7     | 3. 12,8 | 48,53     | 2. 27. 40,7   | 5. 28,9 | 26,15     | 25       |
| 6                                                                  | 4. 36. 53,9    | 3. 18,5 | 48,02     | 2. 22. 11,8   | 5. 32,0 | 25,19     | 24       |
| 7                                                                  | 4. 33. 35,4    | 3. 24,0 | 47,48     | 2. 16. 39,8   | 5. 34,9 | 24,23     | 23       |
| 8                                                                  | 4. 30. 11,4    | 3. 29,5 | 46,95     | 2. 11. 4,9    | 5. 37,7 | 23,25     | 22       |
| 9                                                                  | 4. 26. 41,9    | 3. 34,9 | 46,38     | 2. 5. 27,2    | 5. 40,4 | 22,26     | 21       |
| 10                                                                 | 4. 23. 7,0     | 3. 40,3 | 45,79     | 1. 59. 46,8   | 5. 43,0 | 21,26     | 20       |
| 11                                                                 | 4. 19. 26,7    | 3. 45,7 | 45,19     | 1. 54. 3,8    | 5. 45,5 | 20,25     | 19       |
| 12                                                                 | 4. 15. 41,0    | 3. 50,9 | 44,57     | 1. 48. 18,3   | 5. 47,9 | 19,24     | 18       |
| 13                                                                 | 4. 11. 50,1    | 3. 55,9 | 43,92     | 1. 42. 30,4   | 5. 50,2 | 18,21     | 17       |
| 14                                                                 | 4. 7. 54,2     | 4. 1,1  | 43,29     | 1. 36. 40,2   | 5. 52,2 | 17,19     | 16       |
| 15                                                                 | 4. 3. 53,1     | 4. 6,3  | 42,63     | 1. 30. 48,0   | 5. 54,2 | 16,15     | 15       |
| 16                                                                 | 3. 59. 46,8    | 4. 11,2 | 41,95     | 1. 24. 53,8   | 5. 56,0 | 15,10     | 14       |
| 17                                                                 | 3. 55. 35,6    | 4. 16,1 | 41,24     | 1. 18. 57,8   | 5. 57,8 | 14,04     | 13       |
| 18                                                                 | 3. 51. 19,5    | 4. 20,9 | 40,52     | 1. 13. 0,0    | 5. 59,4 | 12,98     | 12       |
| 19                                                                 | 3. 46. 58,6    | 4. 25,6 | 39,80     | 1. 7. 0,6     | 6. 0,8  | 11,02     | 11       |
| 20                                                                 | 3. 42. 33,0    | 4. 30,3 | 39,04     | 1. 0. 59,8    | 6. 2,1  | 10,85     | 10       |
| 21                                                                 | 3. 38. 2,7     | 4. 34,8 | 38,29     | 0. 54. 57,7   | 6. 3,4  | 9,79      | 9        |
| 22                                                                 | 3. 33. 27,9    | 4. 39,4 | 37,50     | 0. 48. 54,3   | 6. 4,5  | 8,72      | 8        |
| 23                                                                 | 3. 28. 48,5    | 4. 43,7 | 36,72     | 0. 42. 49,8   | 6. 5,3  | 7,63      | 7        |
| 24                                                                 | 3. 24. 4,8     | 4. 48,0 | 35,91     | 0. 36. 44,5   | 6. 6,1  | 6,54      | 6        |
| 25                                                                 | 3. 19. 16,8    | 4. 52,3 | 35,08     | 0. 30. 38,4   | 6. 6,8  | 5,45      | 5        |
| 26                                                                 | 3. 14. 24,5    | 4. 56,4 | 34,26     | 0. 24. 31,6   | 6. 7,4  | 4,36      | 4        |
| 27                                                                 | 3. 9. 28,1     | 5. 0,5  | 33,40     | 0. 18. 24,2   | 6. 7,9  | 3,28      | 3        |
| 28                                                                 | 3. 4. 27,6     | 5. 4,4  | 32,55     | 0. 12. 16,3   | 6. 8,1  | 2,18      | 2        |
| 29                                                                 | 2. 59. 23,2    | 5. 8,1  | 31,67     | 0. 6. 8,2     | 6. 8,2  | 1,10      | 1        |
| 30                                                                 | 2. 54. 15,1    |         | 30,78     | 0. 0. 0,0     |         | 0,00      | 0        |
|                                                                    | +<br>Sig. VII. |         | +         | +<br>Sig. VI. |         | +         |          |



TABLE VIII. EQUATION II.

| ARGUMENT II. |                 |      |       |             |                 |      |       |             |                 |      |       |
|--------------|-----------------|------|-------|-------------|-----------------|------|-------|-------------|-----------------|------|-------|
| ARG.<br>II.  | Equation<br>II. |      | Diff. | ARG.<br>II. | Equation<br>II. |      | Diff. | ARG.<br>II. | Equation<br>II. |      | Diff. |
|              | M.              | S.   |       |             | SEC.            | M.   |       |             | S.              | SEC. |       |
| 0            | 4.              | 14,7 | 24,6  | 3400        | 0.              | 5,2  | 4,2   | 6700        | 8.              | 17,2 | 9,9   |
| 100          | 4.              | 39,3 | 24,0  | 3500        | 0.              | 1,0  | 1,0   | 6800        | 8.              | 7,3  | 12,6  |
| 200          | 5.              | 3,3  | 22,9  | 3600        | 0.              | 0,0  | 1,9   | 6900        | 7.              | 54,7 | 15,0  |
| 300          | 5.              | 26,2 | 21,2  | 3700        | 0.              | 1,9  | 4,9   | 7000        | 7.              | 39,7 | 17,4  |
| 400          | 5.              | 47,4 | 19,3  | 3800        | 0.              | 6,8  | 8,0   | 7100        | 7.              | 22,3 | 19,5  |
| 500          | 6.              | 6,7  | 16,7  | 3900        | 0.              | 14,8 | 10,9  | 7200        | 7.              | 2,8  | 21,4  |
| 600          | 6.              | 23,4 | 13,7  | 4000        | 0.              | 25,7 | 13,7  | 7300        | 6.              | 41,4 | 22,8  |
| 700          | 6.              | 37,1 | 10,9  | 4100        | 0.              | 39,4 | 16,4  | 7400        | 6.              | 18,6 | 24,2  |
| 800          | 6.              | 48,0 | 7,1   | 4200        | 0.              | 55,8 | 18,9  | 7500        | 5.              | 54,4 | 25,0  |
| 900          | 6.              | 55,1 | 3,7   | 4300        | 1.              | 14,7 | 21,2  | 7600        | 5.              | 29,4 | 25,7  |
| 1000         | 6.              | 58,8 | 0,2   | 4400        | 1.              | 35,9 | 23,2  | 7700        | 5.              | 3,7  | 26,0  |
| 1100         | 6.              | 59,0 | 3,5   | 4500        | 1.              | 59,1 | 25,0  | 7800        | 4.              | 37,7 | 25,6  |
| 1200         | 6.              | 55,5 | 6,9   | 4600        | 2.              | 24,1 | 26,3  | 7900        | 4.              | 12,1 | 25,1  |
| 1300         | 6.              | 48,6 | 10,2  | 4700        | 2.              | 50,4 | 27,5  | 8000        | 3.              | 47,0 | 23,9  |
| 1400         | 6.              | 38,4 | 13,4  | 4800        | 3.              | 17,9 | 28,3  | 8100        | 3.              | 23,1 | 22,9  |
| 1500         | 6.              | 25,0 | 16,2  | 4900        | 3.              | 46,2 | 28,5  | 8200        | 3.              | 0,2  | 20,9  |
| 1600         | 6.              | 8,8  | 18,7  | 5000        | 4.              | 14,7 | 28,5  | 8300        | 2.              | 39,3 | 18,7  |
| 1700         | 5.              | 50,1 | 20,9  | 5100        | 4.              | 43,2 | 28,3  | 8400        | 2.              | 20,6 | 16,2  |
| 1800         | 5.              | 29,2 | 22,9  | 5200        | 5.              | 11,5 | 27,5  | 8500        | 2.              | 4,4  | 13,4  |
| 1900         | 5.              | 6,3  | 23,9  | 5300        | 5.              | 39,0 | 26,3  | 8600        | 1.              | 51,0 | 10,2  |
| 2000         | 4.              | 42,4 | 25,1  | 5400        | 6.              | 5,3  | 25,0  | 8700        | 1.              | 40,8 | 6,9   |
| 2100         | 4.              | 17,3 | 25,6  | 5500        | 6.              | 30,3 | 23,2  | 8800        | 1.              | 33,9 | 3,5   |
| 2200         | 3.              | 51,7 | 26,0  | 5600        | 6.              | 53,5 | 21,2  | 8900        | 1.              | 30,4 | 0,2   |
| 2300         | 3.              | 25,7 | 25,7  | 5700        | 7.              | 14,7 | 18,9  | 9000        | 1.              | 30,6 | 3,7   |
| 2400         | 3.              | 0,0  | 25,0  | 5800        | 7.              | 33,6 | 16,4  | 9100        | 1.              | 34,3 | 7,1   |
| 2500         | 2.              | 35,0 | 24,2  | 5900        | 7.              | 50,0 | 13,7  | 9200        | 1.              | 41,4 | 10,9  |
| 2600         | 2.              | 10,8 | 22,8  | 6000        | 8.              | 3,7  | 10,9  | 9300        | 1.              | 52,3 | 13,7  |
| 2700         | 1.              | 48,0 | 21,4  | 6100        | 8.              | 14,6 | 8,0   | 9400        | 2.              | 6,0  | 16,7  |
| 2800         | 1.              | 26,6 | 19,5  | 6200        | 8.              | 22,6 | 4,9   | 9500        | 2.              | 22,7 | 19,3  |
| 2900         | 1.              | 7,1  | 17,4  | 6300        | 8.              | 27,5 | 1,9   | 9600        | 2.              | 42,0 | 21,2  |
| 3000         | 0.              | 49,7 | 15,0  | 6400        | 8.              | 29,4 | 1,0   | 9700        | 3.              | 3,2  | 22,9  |
| 3100         | 0.              | 34,7 | 12,6  | 6500        | 8.              | 28,4 | 4,2   | 9800        | 3.              | 26,1 | 24,0  |
| 3200         | 0.              | 22,1 | 9,9   | 6600        | 8.              | 24,2 | 7,0   | 9900        | 3.              | 50,1 | 24,6  |
| 3300         | 0.              | 12,2 | 7,0   | 6700        | 8.              | 17,2 |       | 10000       | 4.              | 14,7 |       |
| 3400         | 0.              | 5,2  |       |             |                 |      |       |             |                 |      |       |



TABLE IX. EQUATION III.

| ARGUMENT III. |                           |               |              |                           |               |              |                           |               |
|---------------|---------------------------|---------------|--------------|---------------------------|---------------|--------------|---------------------------|---------------|
| ARG.<br>III.  | Equation<br>III.<br>M. S. | Diff.<br>SEC. | ARG.<br>III. | Equation<br>III.<br>M. S. | Diff.<br>SEC. | ARG.<br>III. | Equation<br>III.<br>M. S. | Diff.<br>SEC. |
| 0             | 1. 46,0                   | 8,5           | 3400         | 4. 29,4                   | 3,1           | 6700         | 0. 36,1                   | 5,7           |
| 100           | 1. 54,5                   | 8,6           | 3500         | 4. 26,3                   | 3,6           | 6800         | 0. 30,4                   | 5,2           |
| 200           | 2. 3,1                    | 8,6           | 3600         | 4. 22,7                   | 4,0           | 6900         | 0. 25,2                   | 4,8           |
| 300           | 2. 11,7                   | 8,7           | 3700         | 4. 18,7                   | 4,5           | 7000         | 0. 20,4                   | 4,3           |
| 400           | 2. 20,4                   | 8,7           | 3800         | 4. 14,2                   | 5,0           | 7100         | 0. 16,1                   | 3,8           |
| 500           | 2. 29,1                   | 8,7           | 3900         | 4. 9,2                    | 5,5           | 7200         | 0. 12,3                   | 3,4           |
| 600           | 2. 37,8                   | 8,6           | 4000         | 4. 3,7                    | 5,8           | 7300         | 0. 8,9                    | 2,8           |
| 700           | 2. 46,4                   | 8,4           | 4100         | 3. 57,9                   | 6,2           | 7400         | 0. 6,1                    | 2,3           |
| 800           | 2. 54,8                   | 8,3           | 4200         | 3. 51,7                   | 6,6           | 7500         | 0. 3,8                    | 1,7           |
| 900           | 3. 3,1                    | 8,2           | 4300         | 3. 45,1                   | 7,0           | 7600         | 0. 2,1                    | 1,2           |
| 1000          | 3. 11,3                   | 7,9           | 4400         | 3. 38,1                   | 7,3           | 7700         | 0. 0,9                    | 0,7           |
| 1100          | 3. 19,2                   | 7,7           | 4500         | 3. 30,8                   | 7,6           | 7800         | 0. 0,2                    | 0,2           |
| 1200          | 3. 26,9                   | 7,4           | 4600         | 3. 23,2                   | 7,8           | 7900         | 0. 0,0                    | 0,4           |
| 1300          | 3. 34,3                   | 7,1           | 4700         | 3. 15,4                   | 8,0           | 8000         | 0. 0,4                    | 1,0           |
| 1400          | 3. 41,4                   | 6,8           | 4800         | 3. 7,4                    | 8,2           | 8100         | 0. 1,4                    | 1,5           |
| 1500          | 3. 48,2                   | 6,4           | 4900         | 2. 59,2                   | 8,4           | 8200         | 0. 2,9                    | 2,0           |
| 1600          | 3. 54,6                   | 6,1           | 5000         | 2. 50,8                   | 8,5           | 8300         | 0. 4,9                    | 2,5           |
| 1700          | 4. 0,7                    | 5,7           | 5100         | 2. 42,3                   | 8,6           | 8400         | 0. 7,4                    | 3,1           |
| 1800          | 4. 6,4                    | 5,2           | 5200         | 2. 33,7                   | 8,6           | 8500         | 0. 10,5                   | 3,6           |
| 1900          | 4. 11,6                   | 4,8           | 5300         | 2. 25,1                   | 8,7           | 8600         | 0. 14,1                   | 4,0           |
| 2000          | 4. 16,4                   | 4,3           | 5400         | 2. 16,4                   | 8,7           | 8700         | 0. 18,1                   | 4,5           |
| 2100          | 4. 20,7                   | 3,8           | 5500         | 2. 7,7                    | 8,7           | 8800         | 0. 22,6                   | 5,0           |
| 2200          | 4. 24,5                   | 3,4           | 5600         | 1. 59,0                   | 8,6           | 8900         | 0. 27,6                   | 5,5           |
| 2300          | 4. 27,9                   | 2,8           | 5700         | 1. 50,4                   | 8,4           | 9000         | 0. 33,1                   | 5,8           |
| 2400          | 4. 30,7                   | 2,3           | 5800         | 1. 42,0                   | 8,3           | 9100         | 0. 38,9                   | 6,2           |
| 2500          | 4. 33,0                   | 1,7           | 5900         | 1. 33,7                   | 8,2           | 9200         | 0. 45,1                   | 6,6           |
| 2600          | 4. 34,7                   | 1,2           | 6000         | 1. 25,5                   | 7,9           | 9300         | 0. 51,7                   | 7,0           |
| 2700          | 4. 35,9                   | 0,7           | 6100         | 1. 17,6                   | 7,7           | 9400         | 0. 58,7                   | 7,3           |
| 2800          | 4. 36,6                   | 0,2           | 6200         | 1. 9,9                    | 7,4           | 9500         | 1. 6,0                    | 7,6           |
| 2900          | 4. 36,8                   | 0,4           | 6300         | 1. 2,5                    | 7,1           | 9600         | 1. 13,6                   | 7,8           |
| 3000          | 4. 36,4                   | 1,0           | 6400         | 0. 55,4                   | 6,8           | 9700         | 1. 21,4                   | 8,0           |
| 3100          | 4. 35,4                   | 1,5           | 6500         | 0. 48,6                   | 6,4           | 9800         | 1. 29,4                   | 8,2           |
| 3200          | 4. 33,9                   | 2,0           | 6600         | 0. 42,2                   | 6,1           | 9900         | 1. 37,6                   | 8,4           |
| 3300          | 4. 31,9                   | 2,5           | 6700         | 0. 36,1                   |               | 10000        | 1. 46,0                   |               |



TABLE X. EQUATION IV.

| ARGUMENT IV. |                          |               |             |                          |               |             |                          |               |
|--------------|--------------------------|---------------|-------------|--------------------------|---------------|-------------|--------------------------|---------------|
| ARG.<br>IV.  | Equation<br>IV.<br>M. S. | Diff.<br>SEC. | ARG.<br>IV. | Equation<br>IV.<br>M. S. | Diff.<br>SEC. | ARG.<br>IV. | Equation<br>IV.<br>M. S. | Diff.<br>SEC. |
| 0            | 0. 10,2                  | 2,8           | 3400        | 2. 43,4                  | 2,5           | 6700        | 1. 28,6                  |               |
| 100          | 0. 13,0                  | 3,0           | 3500        | 2. 45,9                  | 2,3           | 6800        | 1. 23,1                  | 5,5           |
| 200          | 0. 16,0                  | 3,3           | 3600        | 2. 48,2                  | 2,0           | 6900        | 1. 17,7                  | 5,4           |
|              |                          |               |             |                          |               |             |                          | 5,5           |
| 300          | 0. 19,3                  | 3,6           | 3700        | 2. 50,2                  | 1,5           | 7000        | 1. 12,2                  | 5,3           |
| 400          | 0. 22,9                  | 3,8           | 3800        | 2. 51,7                  | 1,3           | 7100        | 1. 6,9                   | 5,3           |
| 500          | 0. 26,7                  | 4,1           | 3900        | 2. 53,0                  | 0,9           | 7200        | 1. 1,6                   | 5,2           |
|              |                          |               |             |                          |               |             |                          |               |
| 600          | 0. 30,8                  | 4,2           | 4000        | 2. 53,9                  | 0,6           | 7300        | 0. 56,4                  | 5,1           |
| 700          | 0. 35,0                  | 4,5           | 4100        | 2. 54,5                  | 0,3           | 7400        | 0. 51,3                  | 4,9           |
| 800          | 0. 39,5                  | 4,7           | 4200        | 2. 54,8                  | 0,0           | 7500        | 0. 46,4                  | 4,8           |
|              |                          |               |             |                          |               |             |                          |               |
| 900          | 0. 44,2                  | 4,9           | 4300        | 2. 54,8                  | 0,4           | 7600        | 0. 41,6                  | 4,6           |
| 1000         | 0. 49,1                  | 5,0           | 4400        | 2. 54,4                  | 0,8           | 7700        | 0. 37,0                  | 4,3           |
| 1100         | 0. 54,1                  | 5,2           | 4500        | 2. 53,6                  | 1,2           | 7800        | 0. 32,7                  | 4,2           |
|              |                          |               |             |                          |               |             |                          |               |
| 1200         | 0. 59,3                  | 5,2           | 4600        | 2. 52,4                  | 1,5           | 7900        | 0. 28,5                  | 4,0           |
| 1300         | 1. 4,5                   | 5,3           | 4700        | 2. 50,9                  | 1,8           | 8000        | 0. 24,5                  | 3,7           |
| 1400         | 1. 9,8                   | 5,4           | 4800        | 2. 49,1                  | 2,1           | 8100        | 0. 20,8                  | 3,4           |
|              |                          |               |             |                          |               |             |                          |               |
| 1500         | 1. 15,2                  | 5,5           | 4900        | 2. 47,0                  | 2,4           | 8200        | 0. 17,4                  | 3,1           |
| 1600         | 1. 20,7                  | 5,5           | 5000        | 2. 44,6                  | 2,8           | 8300        | 0. 14,3                  | 2,9           |
| 1700         | 1. 26,2                  | 5,5           | 5100        | 2. 41,8                  | 3,0           | 8400        | 0. 11,4                  | 2,5           |
|              |                          |               |             |                          |               |             |                          |               |
| 1800         | 1. 31,7                  | 5,4           | 5200        | 2. 38,8                  | 3,3           | 8500        | 0. 8,9                   | 2,3           |
| 1900         | 1. 37,1                  | 5,5           | 5300        | 2. 35,5                  | 3,6           | 8600        | 0. 6,6                   | 2,0           |
| 2000         | 1. 42,6                  | 5,3           | 5400        | 2. 31,9                  | 3,8           | 8700        | 0. 4,6                   | 1,5           |
|              |                          |               |             |                          |               |             |                          |               |
| 2100         | 1. 47,9                  | 5,3           | 5500        | 2. 28,1                  | 4,1           | 8800        | 0. 3,1                   | 1,3           |
| 2200         | 1. 53,2                  | 5,2           | 5600        | 2. 24,0                  | 4,2           | 8900        | 0. 1,8                   | 0,9           |
| 2300         | 1. 58,4                  | 5,1           | 5700        | 2. 19,8                  | 4,5           | 9000        | 0. 0,9                   | 0,6           |
|              |                          |               |             |                          |               |             |                          |               |
| 2400         | 2. 3,5                   | 4,9           | 5800        | 2. 15,3                  | 4,7           | 9100        | 0. 0,3                   | 0,3           |
| 2500         | 2. 8,4                   | 4,8           | 5900        | 2. 10,6                  | 4,9           | 9200        | 0. 0,0                   | 0,0           |
| 2600         | 2. 13,2                  | 4,6           | 6000        | 2. 5,7                   | 5,0           | 9300        | 0. 0,0                   | 0,4           |
|              |                          |               |             |                          |               |             |                          |               |
| 2700         | 2. 17,8                  | 4,3           | 6100        | 2. 0,7                   | 5,2           | 9400        | 0. 0,4                   | 0,8           |
| 2800         | 2. 22,1                  | 4,2           | 6200        | 1. 55,5                  | 5,2           | 9500        | 0. 1,2                   | 1,2           |
| 2900         | 2. 26,3                  | 4,0           | 6300        | 1. 50,3                  | 5,3           | 9600        | 0. 2,4                   | 1,5           |
| 3000         | 2. 30,3                  | 3,7           | 6400        | 1. 45,0                  | 5,4           | 9700        | 0. 3,9                   | 1,8           |
|              |                          |               |             |                          |               |             |                          |               |
| 3100         | 2. 34,0                  | 3,4           | 6500        | 1. 39,6                  | 5,5           | 9800        | 0. 5,7                   | 2,1           |
| 3200         | 2. 37,4                  | 3,1           | 6600        | 1. 34,1                  | 5,5           | 9900        | 0. 7,8                   | 2,4           |
| 3300         | 2. 40,5                  | 2,9           | 6700        | 1. 28,6                  |               | 10000       | 0. 10,2                  |               |
| 3400         | 2. 43,4                  |               |             |                          |               |             |                          |               |



TABLE XI. EQUATION V.

| ARGUMENT V. |                |       |            |                |       |            |                |       |
|-------------|----------------|-------|------------|----------------|-------|------------|----------------|-------|
| ARG.<br>V.  | Equation<br>V. | Diff. | ARG.<br>V. | Equation<br>V. | Diff. | ARG.<br>V. | Equation<br>V. | Diff. |
|             | M. S.          | SEC.  |            | M. S.          | SEC.  |            | M. S.          | SEC.  |
| 0           | 5. 4,3         | 5,7   | 3400       | 2. 53,7        | 10,5  | 6700       | 0. 17,6        | 4,9   |
| 100         | 5. 10,0        | 5,2   | 3500       | 2. 43,2        | 10,5  | 6800       | 0. 22,5        | 5,6   |
| 200         | 5. 15,2        | 4,5   | 3600       | 2. 32,7        | 10,4  | 6900       | 0. 28,1        | 6,1   |
| 300         | 5. 19,7        | 3,9   | 3700       | 2. 22,3        | 10,3  | 7000       | 0. 34,2        | 6,6   |
| 400         | 5. 23,6        | 3,4   | 3800       | 2. 12,0        | 10,2  | 7100       | 0. 40,8        | 7,2   |
| 500         | 5. 27,0        | 2,7   | 3900       | 2. 1,8         | 10,0  | 7200       | 0. 48,0        | 7,6   |
| 600         | 5. 29,7        | 2,0   | 4000       | 1. 51,8        | 9,8   | 7300       | 0. 55,6        | 8,0   |
| 700         | 5. 31,7        | 1,3   | 4100       | 1. 42,0        | 9,5   | 7400       | 1. 3,6         | 8,4   |
| 800         | 5. 33,0        | 0,8   | 4200       | 1. 32,5        | 9,2   | 7500       | 1. 12,0        | 8,8   |
| 900         | 5. 33,8        | 0,2   | 4300       | 1. 23,3        | 9,0   | 7600       | 1. 20,8        | 9,1   |
| 1000        | 5. 34,0        | 0,6   | 4400       | 1. 14,3        | 8,5   | 7700       | 1. 29,9        | 9,5   |
| 1100        | 5. 33,4        | 1,3   | 4500       | 1. 5,8         | 8,1   | 7800       | 1. 39,4        | 9,7   |
| 1200        | 5. 32,1        | 1,8   | 4600       | 0. 57,7        | 7,7   | 7900       | 1. 49,1        | 9,9   |
| 1300        | 5. 30,3        | 2,5   | 4700       | 0. 50,0        | 7,3   | 8000       | 1. 59,0        | 10,2  |
| 1400        | 5. 27,8        | 3,2   | 4800       | 0. 42,7        | 6,8   | 8100       | 2. 9,2         | 10,4  |
| 1500        | 5. 24,6        | 3,8   | 4900       | 0. 35,9        | 6,2   | 8200       | 2. 19,6        | 10,3  |
| 1600        | 5. 20,8        | 4,4   | 5000       | 0. 29,7        | 5,7   | 8300       | 2. 29,9        | 10,4  |
| 1700        | 5. 16,4        | 4,9   | 5100       | 0. 24,0        | 5,2   | 8400       | 2. 40,3        | 10,5  |
| 1800        | 5. 11,5        | 5,6   | 5200       | 0. 18,8        | 4,5   | 8500       | 2. 50,8        | 10,5  |
| 1900        | 5. 5,9         | 6,1   | 5300       | 0. 14,3        | 3,9   | 8600       | 3. 1,3         | 10,4  |
| 2000        | 4. 59,8        | 6,6   | 5400       | 0. 10,4        | 3,4   | 8700       | 3. 11,7        | 10,3  |
| 2100        | 4. 53,2        | 7,2   | 5500       | 0. 7,0         | 2,7   | 8800       | 3. 22,0        | 10,2  |
| 2200        | 4. 46,0        | 7,6   | 5600       | 0. 4,3         | 2,0   | 8900       | 3. 32,2        | 10,0  |
| 2300        | 4. 38,4        | 8,0   | 5700       | 0. 2,3         | 1,3   | 9000       | 3. 42,2        | 9,8   |
| 2400        | 4. 30,4        | 8,4   | 5800       | 0. 1,0         | 0,8   | 9100       | 3. 52,0        | 9,5   |
| 2500        | 4. 22,0        | 8,8   | 5900       | 0. 0,2         | 0,2   | 9200       | 4. 1,5         | 9,2   |
| 2600        | 4. 13,2        | 9,1   | 6000       | 0. 0,0         | 0,6   | 9300       | 4. 10,7        | 9,0   |
| 2700        | 4. 4,1         | 9,5   | 6100       | 0. 0,6         | 1,3   | 9400       | 4. 19,7        | 8,5   |
| 2800        | 3. 54,6        | 9,7   | 6200       | 0. 1,9         | 1,8   | 9500       | 4. 28,2        | 8,1   |
| 2900        | 3. 44,9        | 9,9   | 6300       | 0. 3,7         | 2,5   | 9600       | 4. 36,3        | 7,7   |
| 3000        | 3. 35,0        | 10,2  | 6400       | 0. 6,2         | 3,2   | 9700       | 4. 44,0        | 7,3   |
| 3100        | 3. 24,8        | 10,4  | 6500       | 0. 9,4         | 3,8   | 9800       | 4. 51,3        | 6,8   |
| 3200        | 3. 14,4        | 10,3  | 6600       | 0. 13,2        | 4,4   | 9900       | 4. 58,1        | 6,2   |
| 3300        | 3. 4,1         | 10,4  | 6700       | 0. 17,6        |       | 10000      | 5. 4,3         |       |
| 3400        | 2. 53,7        |       |            |                |       |            |                |       |



TABLE XII. EQUATION VI.

## ARGUMENT VI.

| ARG.<br>VI. | Equat.<br>VI.<br>SEC. | ARG.<br>VI. | Equat.<br>VI.<br>SEC. | ARG.<br>VI. | Equat.<br>VI.<br>SEC. |
|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| 0           | 30,2                  | 340         | 2,2                   | 670         | 15,5                  |
| 10          | 29,7                  | 350         | 1,7                   | 680         | 16,5                  |
| 20          | 29,2                  | 360         | 1,3                   | 690         | 17,5                  |
| 30          | 28,6                  | 370         | 1,0                   | 700         | 18,5                  |
| 40          | 28,0                  | 380         | 0,7                   | 710         | 19,5                  |
| 50          | 27,3                  | 390         | 0,4                   | 720         | 20,5                  |
| 60          | 26,5                  | 400         | 0,2                   | 730         | 21,5                  |
| 70          | 25,8                  | 410         | 0,1                   | 740         | 22,4                  |
| 80          | 25,0                  | 420         | 0,0                   | 750         | 23,3                  |
| 90          | 24,1                  | 430         | 0,0                   | 760         | 24,2                  |
| 100         | 23,2                  | 440         | 0,1                   | 770         | 25,1                  |
| 110         | 22,3                  | 450         | 0,2                   | 780         | 25,9                  |
| 120         | 21,4                  | 460         | 0,4                   | 790         | 26,6                  |
| 130         | 20,4                  | 470         | 0,7                   | 800         | 27,4                  |
| 140         | 19,5                  | 480         | 1,0                   | 810         | 28,1                  |
| 150         | 18,5                  | 490         | 1,3                   | 820         | 28,7                  |
| 160         | 17,5                  | 500         | 1,8                   | 830         | 29,3                  |
| 170         | 16,5                  | 510         | 2,3                   | 840         | 29,8                  |
| 180         | 15,5                  | 520         | 2,8                   | 850         | 30,3                  |
| 190         | 14,5                  | 530         | 3,4                   | 860         | 30,7                  |
| 200         | 13,5                  | 540         | 4,0                   | 870         | 31,0                  |
| 210         | 12,5                  | 550         | 4,7                   | 880         | 31,3                  |
| 220         | 11,5                  | 560         | 5,5                   | 890         | 31,6                  |
| 230         | 10,5                  | 570         | 6,2                   | 900         | 31,8                  |
| 240         | 9,6                   | 580         | 7,0                   | 910         | 31,9                  |
| 250         | 8,7                   | 590         | 7,9                   | 920         | 32,0                  |
| 260         | 7,8                   | 600         | 8,8                   | 930         | 32,0                  |
| 270         | 6,9                   | 610         | 9,7                   | 940         | 31,9                  |
| 280         | 6,1                   | 620         | 10,6                  | 950         | 31,8                  |
| 290         | 5,4                   | 630         | 11,6                  | 960         | 31,6                  |
| 300         | 4,6                   | 640         | 12,5                  | 970         | 31,3                  |
| 310         | 3,9                   | 650         | 13,5                  | 980         | 31,0                  |
| 320         | 3,3                   | 660         | 14,5                  | 990         | 30,7                  |
| 330         | 2,7                   | 670         | 15,5                  | 1000        | 30,2                  |
| 340         | 2,2                   |             |                       |             |                       |

TABLE XIII. EQUATION VII.

## ARGUMENT VII.

| ARG.<br>VII. | Equat.<br>VII.<br>SEC. | ARG.<br>VII. | Equat.<br>VII.<br>SEC. | ARG.<br>VII. | Equat.<br>VII.<br>SEC. |
|--------------|------------------------|--------------|------------------------|--------------|------------------------|
| 0            | 10,9                   | 340          | 24,5                   | 670          | 2,6                    |
| 10           | 11,7                   | 350          | 24,1                   | 680          | 2,2                    |
| 20           | 12,5                   | 360          | 23,7                   | 690          | 1,8                    |
| 30           | 13,3                   | 370          | 23,4                   | 700          | 1,4                    |
| 40           | 14,1                   | 380          | 22,9                   | 710          | 1,0                    |
| 50           | 14,9                   | 390          | 22,3                   | 720          | 0,7                    |
| 60           | 15,7                   | 400          | 21,8                   | 730          | 0,5                    |
| 70           | 16,5                   | 410          | 21,2                   | 740          | 0,2                    |
| 80           | 17,3                   | 420          | 20,6                   | 750          | 0,1                    |
| 90           | 18,0                   | 430          | 19,9                   | 760          | 0,0                    |
| 100          | 18,7                   | 440          | 19,2                   | 770          | 0,0                    |
| 110          | 19,4                   | 450          | 18,5                   | 780          | 0,0                    |
| 120          | 20,0                   | 460          | 18,0                   | 790          | 0,1                    |
| 130          | 20,7                   | 470          | 17,1                   | 800          | 0,2                    |
| 140          | 21,3                   | 480          | 16,2                   | 810          | 0,4                    |
| 150          | 21,9                   | 490          | 15,4                   | 820          | 0,6                    |
| 160          | 22,5                   | 500          | 14,7                   | 830          | 0,8                    |
| 170          | 23,0                   | 510          | 13,9                   | 840          | 1,1                    |
| 180          | 23,4                   | 520          | 13,1                   | 850          | 1,5                    |
| 190          | 23,8                   | 530          | 12,3                   | 860          | 1,9                    |
| 200          | 24,2                   | 540          | 11,5                   | 870          | 2,2                    |
| 210          | 24,6                   | 550          | 10,7                   | 880          | 2,7                    |
| 220          | 24,9                   | 560          | 9,9                    | 890          | 3,3                    |
| 230          | 25,1                   | 570          | 9,1                    | 900          | 3,8                    |
| 240          | 25,4                   | 580          | 8,3                    | 910          | 4,4                    |
| 250          | 25,5                   | 590          | 7,6                    | 920          | 5,0                    |
| 260          | 25,6                   | 600          | 6,9                    | 930          | 5,7                    |
| 270          | 25,6                   | 610          | 6,2                    | 940          | 6,4                    |
| 280          | 25,6                   | 620          | 5,6                    | 950          | 7,1                    |
| 290          | 25,5                   | 630          | 4,9                    | 960          | 7,8                    |
| 300          | 25,4                   | 640          | 4,3                    | 970          | 8,5                    |
| 310          | 25,2                   | 650          | 3,7                    | 980          | 9,4                    |
| 320          | 25,0                   | 660          | 3,1                    | 990          | 10,2                   |
| 330          | 24,8                   | 670          | 2,6                    | 1000         | 10,9                   |
| 340          | 24,5                   |              |                        |              |                        |



## TABLES OF JUPITER.

TABLE XIV. EQUATION VIII.

## ARGUMENT VIII.

| ARG.<br>VIII. | Equat.<br>VIII.<br>SEC. | ARG.<br>VIII. | Equat.<br>VIII.<br>SEC. | ARG.<br>VIII. | Equat.<br>VIII.<br>SEC. |
|---------------|-------------------------|---------------|-------------------------|---------------|-------------------------|
| 0             | 24,1                    | 340           | 1,4                     | 670           | 13,6                    |
| 10            | 23,6                    | 350           | 1,0                     | 680           | 14,5                    |
| 20            | 23,1                    | 360           | 0,7                     | 690           | 15,3                    |
| 30            | 22,5                    | 370           | 0,5                     | 700           | 16,1                    |
| 40            | 21,9                    | 380           | 0,3                     | 710           | 16,8                    |
| 50            | 21,4                    | 390           | 0,1                     | 720           | 17,6                    |
| 60            | 20,8                    | 400           | 0,1                     | 730           | 18,4                    |
| 70            | 20,1                    | 410           | 0,0                     | 740           | 19,1                    |
| 80            | 19,4                    | 420           | 0,0                     | 750           | 19,8                    |
| 90            | 18,7                    | 430           | 0,1                     | 760           | 20,4                    |
| 100           | 18,0                    | 440           | 0,2                     | 770           | 21,0                    |
| 110           | 17,2                    | 450           | 0,4                     | 780           | 21,7                    |
| 120           | 16,4                    | 460           | 0,6                     | 790           | 22,3                    |
| 130           | 15,6                    | 470           | 0,8                     | 800           | 22,9                    |
| 140           | 14,8                    | 480           | 1,2                     | 810           | 23,4                    |
| 150           | 14,0                    | 490           | 1,5                     | 820           | 23,9                    |
| 160           | 13,2                    | 500           | 1,9                     | 830           | 24,3                    |
| 170           | 12,4                    | 510           | 2,4                     | 840           | 24,6                    |
| 180           | 11,5                    | 520           | 2,9                     | 850           | 25,0                    |
| 190           | 10,7                    | 530           | 3,5                     | 860           | 25,3                    |
| 200           | 9,9                     | 540           | 4,0                     | 870           | 25,5                    |
| 210           | 9,2                     | 550           | 4,6                     | 880           | 25,7                    |
| 220           | 8,4                     | 560           | 5,2                     | 890           | 25,9                    |
| 230           | 7,6                     | 570           | 5,9                     | 900           | 25,9                    |
| 240           | 6,9                     | 580           | 6,6                     | 910           | 26,0                    |
| 250           | 6,2                     | 590           | 7,3                     | 920           | 26,0                    |
| 260           | 5,6                     | 600           | 8,0                     | 930           | 25,9                    |
| 270           | 5,0                     | 610           | 8,8                     | 940           | 25,8                    |
| 280           | 4,3                     | 620           | 9,6                     | 950           | 25,6                    |
| 290           | 3,7                     | 630           | 10,4                    | 960           | 25,5                    |
| 300           | 3,1                     | 640           | 11,2                    | 970           | 25,2                    |
| 310           | 2,6                     | 650           | 12,0                    | 980           | 24,8                    |
| 320           | 2,1                     | 660           | 12,8                    | 990           | 24,5                    |
| 330           | 1,7                     | 670           | 13,6                    | 1000          | 24,1                    |
| 340           | 1,4                     |               |                         |               |                         |

TABLE XV. EQUATION IX.

## ARGUMENT IX.

| ARG.<br>IX. | Equat.<br>IX.<br>SEC. | ARG.<br>IX. | Equat.<br>IX.<br>SEC. | ARG.<br>IX. | Equat.<br>IX.<br>SEC. |
|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| 0           | 19,8                  | 340         | 14,1                  | 670         | 0,5                   |
| 10          | 20,3                  | 350         | 13,4                  | 680         | 0,8                   |
| 20          | 20,8                  | 360         | 12,7                  | 690         | 1,0                   |
| 30          | 21,2                  | 370         | 12,0                  | 700         | 1,3                   |
| 40          | 21,5                  | 380         | 11,2                  | 710         | 1,7                   |
| 50          | 21,9                  | 390         | 10,5                  | 720         | 2,0                   |
| 60          | 22,2                  | 400         | 9,8                   | 730         | 2,4                   |
| 70          | 22,5                  | 410         | 9,1                   | 740         | 2,9                   |
| 80          | 22,8                  | 420         | 8,4                   | 750         | 3,4                   |
| 90          | 23,0                  | 430         | 7,7                   | 760         | 3,9                   |
| 100         | 23,1                  | 440         | 7,0                   | 770         | 4,5                   |
| 110         | 23,1                  | 450         | 6,3                   | 780         | 5,0                   |
| 120         | 23,2                  | 460         | 5,6                   | 790         | 5,6                   |
| 130         | 23,2                  | 470         | 5,0                   | 800         | 6,3                   |
| 140         | 23,1                  | 480         | 4,5                   | 810         | 7,0                   |
| 150         | 23,1                  | 490         | 3,9                   | 820         | 7,7                   |
| 160         | 23,0                  | 500         | 3,4                   | 830         | 8,4                   |
| 170         | 22,7                  | 510         | 2,9                   | 840         | 9,1                   |
| 180         | 22,4                  | 520         | 2,4                   | 850         | 9,8                   |
| 190         | 22,2                  | 530         | 2,0                   | 860         | 10,5                  |
| 200         | 21,9                  | 540         | 1,7                   | 870         | 11,2                  |
| 210         | 21,5                  | 550         | 1,3                   | 880         | 12,0                  |
| 220         | 21,2                  | 560         | 1,0                   | 890         | 12,7                  |
| 230         | 20,8                  | 570         | 0,8                   | 900         | 13,4                  |
| 240         | 20,3                  | 580         | 0,4                   | 910         | 14,1                  |
| 250         | 19,8                  | 590         | 0,2                   | 920         | 14,8                  |
| 260         | 19,3                  | 600         | 0,1                   | 930         | 15,5                  |
| 270         | 18,7                  | 610         | 0,1                   | 940         | 16,2                  |
| 280         | 18,2                  | 620         | 0,0                   | 950         | 16,9                  |
| 290         | 17,6                  | 630         | 0,0                   | 960         | 17,6                  |
| 300         | 16,9                  | 640         | 0,1                   | 970         | 18,2                  |
| 310         | 16,2                  | 650         | 0,1                   | 980         | 18,7                  |
| 320         | 15,5                  | 660         | 0,2                   | 990         | 19,3                  |
| 330         | 14,8                  | 670         | 0,5                   | 1000        | 19,8                  |
| 340         | 14,1                  |             |                       |             |                       |



TABLE XVI. EQUATION X.

ARGUMENT X. = VII. - VIII.

| ARG.<br>X. | Equat.<br>X.<br>SEC. | ARG.<br>X. | Equat.<br>X.<br>SEC. | ARG.<br>X. | Equat.<br>X.<br>SEC. |
|------------|----------------------|------------|----------------------|------------|----------------------|
| 0          | 17,1                 | 340        | 12,2                 | 670        | 0,4                  |
| 10         | 17,5                 | 350        | 11,6                 | 680        | 0,7                  |
| 20         | 17,9                 | 360        | 10,9                 | 690        | 0,9                  |
| 30         | 18,3                 | 370        | 10,3                 | 700        | 1,1                  |
| 40         | 18,6                 | 380        | 9,7                  | 710        | 1,4                  |
| 50         | 18,9                 | 390        | 9,1                  | 720        | 1,8                  |
| 60         | 19,1                 | 400        | 8,4                  | 730        | 2,1                  |
| 70         | 19,4                 | 410        | 7,8                  | 740        | 2,5                  |
| 80         | 19,6                 | 420        | 7,2                  | 750        | 2,9                  |
| 90         | 19,8                 | 430        | 6,6                  | 760        | 3,3                  |
| 100        | 19,9                 | 440        | 6,1                  | 770        | 3,8                  |
| 110        | 19,9                 | 450        | 5,5                  | 780        | 4,4                  |
| 120        | 20,0                 | 460        | 4,9                  | 790        | 4,9                  |
| 130        | 20,0                 | 470        | 4,4                  | 800        | 5,5                  |
| 140        | 20,0                 | 480        | 3,8                  | 810        | 6,0                  |
| 150        | 19,9                 | 490        | 3,3                  | 820        | 6,6                  |
| 160        | 19,8                 | 500        | 2,9                  | 830        | 7,2                  |
| 170        | 19,6                 | 510        | 2,5                  | 840        | 7,8                  |
| 180        | 19,3                 | 520        | 2,1                  | 850        | 8,4                  |
| 190        | 19,1                 | 530        | 1,7                  | 860        | 9,1                  |
| 200        | 18,9                 | 540        | 1,4                  | 870        | 9,7                  |
| 210        | 18,6                 | 550        | 1,1                  | 880        | 10,3                 |
| 220        | 18,2                 | 560        | 0,9                  | 890        | 10,9                 |
| 230        | 17,9                 | 570        | 0,6                  | 900        | 11,6                 |
| 240        | 17,5                 | 580        | 0,4                  | 910        | 12,2                 |
| 250        | 17,1                 | 590        | 0,2                  | 920        | 12,8                 |
| 260        | 16,7                 | 600        | 0,1                  | 930        | 13,4                 |
| 270        | 16,2                 | 610        | 0,1                  | 940        | 13,9                 |
| 280        | 15,6                 | 620        | 0,0                  | 950        | 14,5                 |
| 290        | 15,1                 | 630        | 0,0                  | 960        | 15,1                 |
| 300        | 14,5                 | 640        | 0,0                  | 970        | 15,6                 |
| 310        | 14,0                 | 650        | 0,1                  | 980        | 16,2                 |
| 320        | 13,4                 | 660        | 0,2                  | 990        | 16,7                 |
| 330        | 12,8                 | 670        | 0,4                  | 1000       | 17,1                 |
| 340        | 12,2                 |            |                      |            |                      |

TABLE XVII. EQUATION XI.

ARGUMENT XI. = VII. + VIII.

| ARG.<br>XI. | Equat.<br>XI.<br>SEC. | ARG.<br>XI. | Equat.<br>XI.<br>SEC. | ARG.<br>XI. | Equat.<br>XI.<br>SEC. |
|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| 0           | 3,9                   | 340         | 1,8                   | 670         | 10,7                  |
| 10          | 3,5                   | 350         | 2,1                   | 680         | 10,8                  |
| 20          | 3,2                   | 360         | 2,4                   | 690         | 10,8                  |
| 30          | 3,0                   | 370         | 2,7                   | 700         | 10,8                  |
| 40          | 2,7                   | 380         | 3,0                   | 710         | 10,8                  |
| 50          | 2,4                   | 390         | 3,3                   | 720         | 10,8                  |
| 60          | 2,1                   | 400         | 3,6                   | 730         | 10,7                  |
| 70          | 1,8                   | 410         | 3,9                   | 740         | 10,7                  |
| 80          | 1,6                   | 420         | 4,2                   | 750         | 10,6                  |
| 90          | 1,3                   | 430         | 4,6                   | 760         | 10,6                  |
| 100         | 1,1                   | 440         | 4,9                   | 770         | 10,4                  |
| 110         | 0,9                   | 450         | 5,2                   | 780         | 10,2                  |
| 120         | 0,8                   | 460         | 5,6                   | 790         | 10,0                  |
| 130         | 0,6                   | 470         | 5,9                   | 800         | 9,9                   |
| 140         | 0,4                   | 480         | 6,2                   | 810         | 9,7                   |
| 150         | 0,3                   | 490         | 6,6                   | 820         | 9,5                   |
| 160         | 0,2                   | 500         | 6,9                   | 830         | 9,2                   |
| 170         | 0,1                   | 510         | 7,3                   | 840         | 9,0                   |
| 180         | 0,0                   | 520         | 7,6                   | 850         | 8,7                   |
| 190         | 0,0                   | 530         | 7,8                   | 860         | 8,4                   |
| 200         | 0,0                   | 540         | 8,1                   | 870         | 8,1                   |
| 210         | 0,0                   | 550         | 8,4                   | 880         | 7,8                   |
| 220         | 0,0                   | 560         | 8,7                   | 890         | 7,6                   |
| 230         | 0,1                   | 570         | 9,0                   | 900         | 7,2                   |
| 240         | 0,1                   | 580         | 9,2                   | 910         | 6,9                   |
| 250         | 0,2                   | 590         | 9,5                   | 920         | 6,6                   |
| 260         | 0,3                   | 600         | 9,7                   | 930         | 6,2                   |
| 270         | 0,4                   | 610         | 9,9                   | 940         | 5,9                   |
| 280         | 0,6                   | 620         | 10,0                  | 950         | 5,6                   |
| 290         | 0,8                   | 630         | 10,2                  | 960         | 5,2                   |
| 300         | 0,9                   | 640         | 10,4                  | 970         | 4,9                   |
| 310         | 1,1                   | 650         | 10,5                  | 980         | 4,6                   |
| 320         | 1,3                   | 660         | 10,6                  | 990         | 4,2                   |
| 330         | 1,6                   | 670         | 10,7                  | 1000        | 3,9                   |
| 340         | 1,8                   |             |                       |             |                       |



TABLE XVIII. Radius Vector of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. <i>The mean Anomaly of Jupiter.</i> |            |       |                    |            |       |                   |            |       |                   |          |
|-------------------------------------------------|------------|-------|--------------------|------------|-------|-------------------|------------|-------|-------------------|----------|
| Degrees.                                        | Sig. O.    |       |                    | Sig. I.    |       |                   | Sig. II.   |       |                   | Degrees. |
|                                                 | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation | Rad. Vect. | Diff. | Secular Variation |          |
|                                                 |            |       | +<br>0,000         |            |       | +<br>0,000        |            |       | +<br>0,000        |          |
| 0                                               | 5,44648    | 3     | 69,64              | 5,41579    | 204   | 61,99             | 5,33011    | 362   | 39,86             | 30       |
| 1                                               | 5,44645    | 11    | 69,63              | 5,41375    | 210   | 61,49             | 5,32649    | 366   | 38,90             | 29       |
| 2                                               | 5,44634    | 17    | 69,61              | 5,41165    | 216   | 60,95             | 5,32283    | 369   | 37,93             | 28       |
| 3                                               | 5,44617    | 24    | 69,57              | 5,40949    | 223   | 60,41             | 5,31914    | 374   | 36,95             | 27       |
| 4                                               | 5,44593    | 32    | 69,51              | 5,40726    | 228   | 59,83             | 5,31540    | 377   | 35,96             | 26       |
| 5                                               | 5,44561    | 38    | 69,43              | 5,40498    | 235   | 59,25             | 5,31163    | 381   | 34,95             | 25       |
| 6                                               | 5,44523    | 45    | 69,34              | 5,40263    | 240   | 58,65             | 5,30782    | 384   | 33,93             | 24       |
| 7                                               | 5,44478    | 52    | 69,22              | 5,40023    | 247   | 58,05             | 5,30398    | 388   | 32,90             | 23       |
| 8                                               | 5,44426    | 58    | 69,09              | 5,39776    | 252   | 57,43             | 5,30010    | 391   | 31,85             | 22       |
| 9                                               | 5,44368    | 66    | 68,95              | 5,39524    | 257   | 56,78             | 5,29619    | 394   | 30,81             | 21       |
| 10                                              | 5,44302    | 73    | 68,79              | 5,39267    | 264   | 56,12             | 5,29225    | 398   | 29,75             | 20       |
| 11                                              | 5,44229    | 79    | 68,61              | 5,39003    | 269   | 55,44             | 5,28827    | 400   | 28,68             | 19       |
| 12                                              | 5,44150    | 86    | 68,40              | 5,38734    | 275   | 54,77             | 5,28427    | 404   | 27,60             | 18       |
| 13                                              | 5,44064    | 93    | 68,19              | 5,38459    | 280   | 54,06             | 5,28023    | 406   | 26,50             | 17       |
| 14                                              | 5,43971    | 100   | 67,98              | 5,38179    | 286   | 53,33             | 5,27617    | 408   | 25,40             | 16       |
| 15                                              | 5,43871    | 107   | 67,74              | 5,37893    | 291   | 52,60             | 5,27209    | 412   | 24,29             | 15       |
| 16                                              | 5,43764    | 113   | 67,45              | 5,37602    | 296   | 51,85             | 5,26797    | 414   | 23,17             | 14       |
| 17                                              | 5,43651    | 120   | 67,18              | 5,37306    | 301   | 51,09             | 5,26383    | 416   | 22,05             | 13       |
| 18                                              | 5,43531    | 126   | 66,87              | 5,37005    | 307   | 50,31             | 5,25967    | 418   | 20,92             | 12       |
| 19                                              | 5,43405    | 134   | 66,56              | 5,36698    | 311   | 49,52             | 5,25549    | 421   | 19,76             | 11       |
| 20                                              | 5,43271    | 140   | 66,23              | 5,36387    | 317   | 48,70             | 5,25128    | 422   | 18,60             | 10       |
| 21                                              | 5,43131    | 146   | 65,88              | 5,36070    | 321   | 47,88             | 5,24706    | 424   | 17,44             | 9        |
| 22                                              | 5,42985    | 153   | 65,52              | 5,35749    | 327   | 47,05             | 5,24282    | 426   | 16,27             | 8        |
| 23                                              | 5,42832    | 160   | 65,13              | 5,35422    | 331   | 46,20             | 5,23856    | 428   | 15,11             | 7        |
| 24                                              | 5,42672    | 166   | 64,74              | 5,35091    | 335   | 45,33             | 5,23428    | 429   | 13,92             | 6        |
| 25                                              | 5,42506    | 173   | 64,32              | 5,34756    | 340   | 44,45             | 5,22999    | 430   | 12,73             | 5        |
| 26                                              | 5,42333    | 179   | 63,88              | 5,34416    | 345   | 43,56             | 5,22569    | 432   | 11,54             | 4        |
| 27                                              | 5,42154    | 185   | 63,44              | 5,34071    | 349   | 42,65             | 5,22137    | 433   | 10,34             | 3        |
| 28                                              | 5,41969    | 192   | 62,98              | 5,33722    | 354   | 41,73             | 5,21704    | 434   | 9,14              | 2        |
| 29                                              | 5,41777    | 198   | 62,49              | 5,33368    | 357   | 40,79             | 5,21270    | 434   | 7,93              | 1        |
| 30                                              | 5,41579    |       | 61,99              | 5,33011    |       | 39,86             | 5,20836    |       | 6,72              | 0        |
|                                                 | Sig. XI.   |       | +                  | Sig. X.    |       | +                 | Sig. IX.   |       | +                 |          |



TABLE XVIII. Radius Vector of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. <i>The mean Anomaly of Jupiter.</i> |            |       |                    |            |       |                    |            |       |                    |          |
|-------------------------------------------------|------------|-------|--------------------|------------|-------|--------------------|------------|-------|--------------------|----------|
| Degrees.                                        | Sig. III.  |       |                    | Sig. IV.   |       |                    | Sig. V.    |       |                    | Degrees. |
|                                                 | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. |          |
|                                                 |            |       | +<br>0,000         |            |       | -<br>0,000         |            |       | -<br>0,000         |          |
| 0                                               | 5,20836    |       | 06,72              | 5,08063    |       | 29,78              | 4,98293    |       | 58,63              | 30       |
| 1                                               | 5,20400    | 436   | 05,49              | 5,07669    | 394   | 30,93              | 4,98059    | 234   | 59,33              | 29       |
| 2                                               | 5,19964    | 436   | 04,28              | 5,07278    | 391   | 32,07              | 4,97832    | 227   | 60,02              | 28       |
| 3                                               | 5,19528    | 436   | 03,06              | 5,06891    | 387   | 33,20              | 4,97612    | 220   | 60,67              | 27       |
|                                                 |            | 437   |                    |            | 383   |                    |            | 212   |                    |          |
| 4                                               | 5,19091    | 437   | 01,82              | 5,06508    | 380   | 34,32              | 4,97400    | 205   | 61,30              | 26       |
| 5                                               | 5,18654    | 437   | 00,61              | 5,06128    | 375   | 35,43              | 4,97195    | 198   | 61,92              | 25       |
| 6                                               | 5,18217    |       | 00,64              | 5,05753    |       | 36,53              | 4,96997    |       | 62,50              | 24       |
|                                                 |            | 437   |                    |            | 371   |                    |            | 191   |                    |          |
| 7                                               | 5,17780    | 437   | 01,87              | 5,05382    | 366   | 37,62              | 4,96806    | 182   | 63,07              | 23       |
| 8                                               | 5,17343    | 436   | 03,09              | 5,05016    | 363   | 38,70              | 4,96624    | 176   | 63,62              | 22       |
| 9                                               | 5,16907    |       | 04,34              | 5,04653    |       | 39,76              | 4,96448    |       | 64,14              | 21       |
|                                                 |            | 436   |                    |            | 357   |                    |            | 167   |                    |          |
| 10                                              | 5,16471    | 436   | 05,58              | 5,04296    | 353   | 40,82              | 4,96281    | 160   | 64,65              | 20       |
| 11                                              | 5,16035    | 434   | 06,82              | 5,03943    | 348   | 41,86              | 4,96121    | 152   | 65,14              | 19       |
| 12                                              | 5,15601    |       | 08,06              | 5,03595    |       | 42,89              | 4,95969    |       | 65,59              | 18       |
|                                                 |            | 434   |                    |            | 343   |                    |            | 144   |                    |          |
| 13                                              | 5,15167    | 433   | 09,29              | 5,03252    | 338   | 43,91              | 4,95825    | 136   | 66,02              | 17       |
| 14                                              | 5,14734    | 431   | 10,53              | 5,02914    | 333   | 44,89              | 4,95689    | 129   | 66,43              | 16       |
| 15                                              | 5,14303    |       | 11,75              | 5,02581    |       | 45,88              | 4,95560    |       | 66,82              | 15       |
|                                                 |            | 431   |                    |            | 328   |                    |            | 120   |                    |          |
| 16                                              | 5,13872    | 428   | 12,98              | 5,02253    | 322   | 46,85              | 4,95440    | 112   | 67,18              | 14       |
| 17                                              | 5,13444    | 428   | 14,22              | 5,01931    | 316   | 47,80              | 4,95328    | 104   | 67,51              | 13       |
| 18                                              | 5,13016    |       | 15,44              | 5,01615    |       | 48,75              | 4,95224    |       | 67,82              | 12       |
|                                                 |            | 425   |                    |            | 311   |                    |            | 96    |                    |          |
| 19                                              | 5,12591    | 424   | 16,66              | 5,01304    | 305   | 49,66              | 4,95128    | 88    | 68,11              | 11       |
| 20                                              | 5,12167    | 422   | 17,89              | 5,00999    | 299   | 50,56              | 4,95040    | 79    | 68,37              | 10       |
| 21                                              | 5,11745    |       | 19,11              | 5,00700    |       | 51,46              | 4,94961    |       | 68,61              | 9        |
|                                                 |            | 419   |                    |            | 293   |                    |            | 71    |                    |          |
| 22                                              | 5,11326    | 418   | 20,31              | 5,00407    | 287   | 52,33              | 4,94890    | 63    | 68,83              | 8        |
| 23                                              | 5,10908    | 415   | 21,52              | 5,00120    | 281   | 53,19              | 4,94827    | 54    | 69,02              | 7        |
| 24                                              | 5,10493    |       | 22,73              | 4,99839    |       | 54,02              | 4,94773    |       | 69,18              | 6        |
|                                                 |            | 412   |                    |            | 274   |                    |            | 46    |                    |          |
| 25                                              | 5,10081    | 409   | 23,91              | 4,99565    | 267   | 54,83              | 4,94727    | 38    | 69,32              | 5        |
| 26                                              | 5,09672    | 407   | 25,10              | 4,99298    | 262   | 55,63              | 4,94689    | 30    | 69,43              | 4        |
| 27                                              | 5,09265    |       | 26,28              | 4,99036    |       | 56,41              | 4,94659    |       | 69,51              | 3        |
|                                                 |            | 404   |                    |            | 254   |                    |            | 21    |                    |          |
| 28                                              | 5,08861    | 401   | 27,45              | 4,98782    | 248   | 57,17              | 4,94638    | 12    | 69,58              | 2        |
| 29                                              | 5,08460    | 397   | 28,62              | 4,98534    | 241   | 57,91              | 4,94626    | 4     | 69,62              | 1        |
| 30                                              | 5,08063    |       | 29,78              | 4,98293    |       | 58,63              | 4,94622    |       | 69,64              | 0        |
|                                                 | Sig. VIII. |       | —                  | Sig. VII.  |       | —                  | Sig. VI.   |       | —                  |          |



Equations of the Radius Vector, always additive.

TABLE XIX.

| ARG.<br>II. | Equation<br>H. |       | ARG.<br>H. | ARG.<br>II. | Equation<br>H. |       | ARG.<br>II. |
|-------------|----------------|-------|------------|-------------|----------------|-------|-------------|
|             | 0,00           | Diff. |            |             | 0,00           | Diff. |             |
| 0           | 075            | 3     | 10000      | 2500        | 617            | 12    | 7500        |
| 100         | 078            | 9     | 9900       | 2600        | 605            | 16    | 7400        |
| 200         | 087            | 14    | 9800       | 2700        | 589            | 20    | 7300        |
| 300         | 101            | 19    | 9700       | 2800        | 569            | 22    | 7200        |
| 400         | 120            | 25    | 9600       | 2900        | 547            | 26    | 7100        |
| 500         | 145            | 28    | 9500       | 3000        | 521            | 28    | 7000        |
| 600         | 173            | 32    | 9400       | 3100        | 493            | 30    | 6900        |
| 700         | 205            | 35    | 9300       | 3200        | 463            | 32    | 6800        |
| 800         | 240            | 37    | 9200       | 3300        | 431            | 34    | 6700        |
| 900         | 277            | 39    | 9100       | 3400        | 397            | 35    | 6600        |
| 1000        | 316            | 39    | 9000       | 3500        | 362            | 35    | 6500        |
| 1100        | 355            | 38    | 8900       | 3600        | 327            | 35    | 6400        |
| 1200        | 393            | 37    | 8800       | 3700        | 292            | 36    | 6300        |
| 1300        | 430            | 36    | 8700       | 3800        | 256            | 35    | 6200        |
| 1400        | 466            | 33    | 8600       | 3900        | 221            | 33    | 6100        |
| 1500        | 499            | 30    | 8500       | 4000        | 188            | 32    | 6000        |
| 1600        | 529            | 27    | 8400       | 4100        | 156            | 30    | 5900        |
| 1700        | 556            | 23    | 8300       | 4200        | 126            | 28    | 5800        |
| 1800        | 579            | 19    | 8200       | 4300        | 098            | 25    | 5700        |
| 1900        | 598            | 14    | 8100       | 4400        | 073            | 21    | 5600        |
| 2000        | 612            | 10    | 8000       | 4500        | 052            | 18    | 5500        |
| 2100        | 622            | 5     | 7900       | 4600        | 034            | 14    | 5400        |
| 2200        | 627            | 1     | 7800       | 4700        | 020            | 11    | 5300        |
| 2300        | 628            | 4     | 7700       | 4800        | 009            | 7     | 5200        |
| 2400        | 624            | 7     | 7600       | 4900        | 002            | 2     | 5100        |
| 2500        | 617            |       | 7500       | 5000        | 000            |       | 5000        |



Equations of the Radius Vector, always additive.

TABLE XX.

| ARG.<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       |
|-------------|-----------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|
|             | 0,00            | Diff. |             | 0,00            | Diff. |             | 0,00            | Diff. |             | 0,00            | Diff. |
| 0           | 049             | 5     | 2500        | 011             | 3     | 5000        | 136             | 5     | 7500        | 175             | 3     |
| 100         | 044             | 5     | 2600        | 014             | 3     | 5100        | 141             | 5     | 7600        | 172             | 4     |
| 200         | 039             | 4     | 2700        | 017             | 3     | 5200        | 146             | 5     | 7700        | 168             | 3     |
| 300         | 035             | 5     | 2800        | 020             | 4     | 5300        | 151             | 4     | 7800        | 165             | 4     |
| 400         | 030             | 4     | 2900        | 024             | 4     | 5400        | 155             | 4     | 7900        | 161             | 4     |
| 500         | 026             | 4     | 3000        | 028             | 5     | 5500        | 159             | 4     | 8000        | 157             | 4     |
| 600         | 022             | 4     | 3100        | 033             | 4     | 5600        | 163             | 4     | 8100        | 153             | 5     |
| 700         | 018             | 3     | 3200        | 037             | 5     | 5700        | 167             | 3     | 8200        | 148             | 5     |
| 800         | 015             | 3     | 3300        | 042             | 5     | 5800        | 170             | 3     | 8300        | 143             | 5     |
| 900         | 012             | 3     | 3400        | 047             | 5     | 5900        | 173             | 3     | 8400        | 138             | 5     |
| 1000        | 009             | 2     | 3500        | 052             | 5     | 6000        | 176             | 2     | 8500        | 133             | 5     |
| 1100        | 007             | 2     | 3600        | 057             | 6     | 6100        | 178             | 2     | 8600        | 128             | 5     |
| 1200        | 005             | 2     | 3700        | 063             | 5     | 6200        | 180             | 2     | 8700        | 123             | 6     |
| 1300        | 003             | 1     | 3800        | 068             | 6     | 6300        | 182             | 1     | 8800        | 117             | 6     |
| 1400        | 002             | 1     | 3900        | 074             | 6     | 6400        | 183             | 1     | 8900        | 111             | 5     |
| 1500        | 001             | 0     | 4000        | 080             | 6     | 6500        | 184             | 1     | 9000        | 106             | 6     |
| 1600        | 000             | 0     | 4100        | 086             | 5     | 6600        | 185             | 0     | 9100        | 100             | 6     |
| 1700        | 000             | 0     | 4200        | 091             | 6     | 6700        | 185             | 0     | 9200        | 094             | 6     |
| 1800        | 000             | 1     | 4300        | 097             | 6     | 6800        | 185             | 0     | 9300        | 088             | 6     |
| 1900        | 001             | 1     | 4400        | 103             | 6     | 6900        | 185             | 1     | 9400        | 082             | 5     |
| 2000        | 002             | 1     | 4500        | 109             | 6     | 7000        | 184             | 1     | 9500        | 077             | 6     |
| 2100        | 003             | 1     | 4600        | 115             | 5     | 7100        | 183             | 2     | 9600        | 071             | 6     |
| 2200        | 004             | 2     | 4700        | 120             | 6     | 7200        | 181             | 2     | 9700        | 065             | 5     |
| 2300        | 006             | 2     | 4800        | 126             | 5     | 7300        | 179             | 2     | 9800        | 060             | 6     |
| 2400        | 008             | 2     | 4900        | 131             | 5     | 7400        | 177             | 2     | 9900        | 054             | 5     |
| 2500        | 011             | 3     | 5000        | 136             | 5     | 7500        | 175             |       | 10000       | 049             |       |



Equations of the Radius Vector, always additive.

TABLE XXI.

| ARG.<br>V. | Equation<br>V. |       | ARG.<br>V. | Equation<br>V. |       | ARG.<br>V. | Equation<br>V. |       | ARG.<br>V. | Equation<br>V. |       |
|------------|----------------|-------|------------|----------------|-------|------------|----------------|-------|------------|----------------|-------|
|            | 0,00           | Diff. |            | 0,00           | Diff. |            | 0,00           | Diff. |            | 0,00           | Diff. |
| 0          | 087            | 11    | 2500       | 381            | 7     | 5000       | 334            | 11    | 7500       | 040            | 7     |
| 100        | 098            | 11    | 2600       | 388            | 7     | 5100       | 323            | 11    | 7600       | 033            | 7     |
| 200        | 109            | 12    | 2700       | 395            | 6     | 5200       | 312            | 12    | 7700       | 026            | 6     |
| 300        | 121            | 13    | 2800       | 401            | 5     | 5300       | 300            | 12    | 7800       | 020            | 5     |
| 400        | 134            | 12    | 2900       | 406            | 5     | 5400       | 288            | 13    | 7900       | 015            | 5     |
| 500        | 146            | 13    | 3000       | 411            | 4     | 5500       | 275            | 13    | 8000       | 010            | 4     |
| 600        | 159            | 13    | 3100       | 415            | 2     | 5600       | 262            | 13    | 8100       | 006            | 2     |
| 700        | 172            | 13    | 3200       | 417            | 2     | 5700       | 249            | 13    | 8200       | 004            | 2     |
| 800        | 185            | 13    | 3300       | 419            | 2     | 5800       | 236            | 13    | 8300       | 002            | 2     |
| 900        | 198            | 13    | 3400       | 421            | 0     | 5900       | 223            | 13    | 8400       | 000            | 0     |
| 1000       | 211            | 13    | 3500       | 421            | 1     | 6000       | 210            | 13    | 8500       | 000            | 1     |
| 1100       | 224            | 13    | 3600       | 420            | 1     | 6100       | 197            | 13    | 8600       | 001            | 1     |
| 1200       | 237            | 13    | 3700       | 419            | 2     | 6200       | 184            | 13    | 8700       | 002            | 2     |
| 1300       | 250            | 13    | 3800       | 417            | 3     | 6300       | 171            | 13    | 8800       | 004            | 3     |
| 1400       | 263            | 13    | 3900       | 414            | 3     | 6400       | 158            | 13    | 8900       | 007            | 3     |
| 1500       | 276            | 12    | 4000       | 411            | 5     | 6500       | 145            | 13    | 9000       | 010            | 5     |
| 1600       | 288            | 13    | 4100       | 406            | 5     | 6600       | 132            | 12    | 9100       | 015            | 5     |
| 1700       | 301            | 11    | 4200       | 401            | 6     | 6700       | 120            | 11    | 9200       | 020            | 6     |
| 1800       | 312            | 12    | 4300       | 395            | 7     | 6800       | 109            | 12    | 9300       | 026            | 7     |
| 1900       | 324            | 11    | 4400       | 388            | 8     | 6900       | 097            | 11    | 9400       | 033            | 8     |
| 2000       | 335            | 10    | 4500       | 380            | 8     | 7000       | 086            | 10    | 9500       | 041            | 8     |
| 2100       | 345            | 10    | 4600       | 372            | 8     | 7100       | 076            | 10    | 9600       | 049            | 8     |
| 2200       | 355            | 9     | 4700       | 364            | 10    | 7200       | 066            | 9     | 9700       | 057            | 10    |
| 2300       | 364            | 9     | 4800       | 354            | 10    | 7300       | 057            | 9     | 9800       | 067            | 10    |
| 2400       | 373            | 8     | 4900       | 344            | 10    | 7400       | 048            | 8     | 9900       | 077            | 10    |
| 2500       | 381            |       | 5000       | 334            |       | 7500       | 040            |       | 10000      | 087            |       |



TABLE XXII. Heliocentric Latitude for 1750, with the Secular Variation.

ARGUMENT XII. *Longitude of Jupiter — that of the Node.*

| Degrees. | Latitude.   |     |    | Differ. | Sec. Var. | Latitude.    |     |    | Differ. | Sec. Var. | Latitude.     |     |    | Differ. | Sec. Var. | Degrees. |
|----------|-------------|-----|----|---------|-----------|--------------|-----|----|---------|-----------|---------------|-----|----|---------|-----------|----------|
|          | Sig. O. N.  |     |    |         |           | Sig. I. N.   |     |    |         |           | Sig. II. N.   |     |    |         |           |          |
|          | Sig. VI. S. |     |    |         |           | Sig. VII. S. |     |    |         |           | Sig. VIII. S. |     |    |         |           |          |
|          | D           | M.  | S. |         |           | D            | M.  | S. |         |           | D             | M.  | S. |         |           |          |
| 0        | 0.          | 0.  | 0  | I. 23   | 0,0       | 0.           | 39. | 31 | I. 11   | 11,0      | I.            | 8.  | 27 | 40      | 19,0      | 30       |
| 1        | 0.          | 1.  | 23 | I. 22   | 0,4       | 0.           | 40. | 42 | I. 11   | 11,4      | I.            | 9.  | 7  | 40      | 19,2      | 29       |
| 2        | 0.          | 2.  | 45 | I. 23   | 0,8       | 0.           | 41. | 53 | I. 10   | 11,7      | I.            | 9.  | 47 | 38      | 19,4      | 28       |
| 3        | 0.          | 4.  | 8  | I. 23   | 1,1       | 0.           | 43. | 3  | I. 9    | 12,0      | I.            | 10. | 25 | 37      | 19,6      | 27       |
| 4        | 0.          | 5.  | 31 | I. 22   | 1,5       | 0.           | 44. | 12 | I. 8    | 12,3      | I.            | 11. | 2  | 36      | 19,8      | 26       |
| 5        | 0.          | 6.  | 53 | I. 23   | 1,9       | 0.           | 45. | 20 | I. 7    | 12,6      | I.            | 11. | 38 | 34      | 20,0      | 25       |
| 6        | 0.          | 8.  | 16 | I. 22   | 2,3       | 0.           | 46. | 27 | I. 7    | 12,9      | I.            | 12. | 12 | 33      | 20,1      | 24       |
| 7        | 0.          | 9.  | 38 | I. 22   | 2,7       | 0.           | 47. | 34 | I. 5    | 13,2      | I.            | 12. | 45 | 32      | 20,3      | 23       |
| 8        | 0.          | 11. | 0  | I. 22   | 3,1       | 0.           | 48. | 39 | I. 5    | 13,5      | I.            | 13. | 17 | 30      | 20,4      | 22       |
| 9        | 0.          | 12. | 22 | I. 21   | 3,4       | 0.           | 49. | 44 | I. 4    | 13,8      | I.            | 13. | 47 | 29      | 20,5      | 21       |
| 10       | 0.          | 13. | 43 | I. 22   | 3,8       | 0.           | 50. | 48 | I. 3    | 14,1      | I.            | 14. | 16 | 28      | 20,7      | 20       |
| 11       | 0.          | 15. | 5  | I. 21   | 4,2       | 0.           | 51. | 51 | I. 2    | 14,4      | I.            | 14. | 44 | 26      | 20,8      | 19       |
| 12       | 0.          | 16. | 26 | I. 21   | 4,6       | 0.           | 52. | 53 | I. 1    | 14,7      | I.            | 15. | 10 | 25      | 20,9      | 18       |
| 13       | 0.          | 17. | 47 | I. 20   | 5,0       | 0.           | 53. | 54 | I. 0    | 15,0      | I.            | 15. | 35 | 23      | 21,1      | 17       |
| 14       | 0.          | 19. | 7  | I. 20   | 5,4       | 0.           | 54. | 54 | O. 59   | 15,3      | I.            | 15. | 58 | 22      | 21,2      | 16       |
| 15       | 0.          | 20. | 27 | I. 20   | 5,7       | 0.           | 55. | 53 | O. 58   | 15,5      | I.            | 16. | 20 | 21      | 21,3      | 15       |
| 16       | 0.          | 21. | 47 | I. 19   | 6,1       | 0.           | 56. | 51 | O. 57   | 15,8      | I.            | 16. | 41 | 19      | 21,4      | 14       |
| 17       | 0.          | 23. | 6  | I. 19   | 6,5       | 0.           | 57. | 48 | O. 56   | 16,1      | I.            | 17. | 0  | 18      | 21,5      | 13       |
| 18       | 0.          | 24. | 25 | I. 19   | 6,8       | 0.           | 58. | 44 | O. 55   | 16,3      | I.            | 17. | 18 | 17      | 21,5      | 12       |
| 19       | 0.          | 25. | 44 | I. 18   | 7,2       | 0.           | 59. | 39 | O. 54   | 16,6      | I.            | 17. | 35 | 15      | 21,6      | 11       |
| 20       | 0.          | 27. | 2  | I. 17   | 7,6       | I.           | 0.  | 33 | O. 52   | 16,9      | I.            | 17. | 50 | 14      | 21,6      | 10       |
| 21       | 0.          | 28. | 19 | I. 17   | 7,9       | I.           | 1.  | 25 | O. 52   | 17,1      | I.            | 18. | 4  | 12      | 21,7      | 9        |
| 22       | 0.          | 29. | 36 | I. 17   | 8,3       | I.           | 2.  | 17 | O. 50   | 17,4      | I.            | 18. | 16 | 11      | 21,8      | 8        |
| 23       | 0.          | 30. | 53 | I. 17   | 8,7       | I.           | 3.  | 7  | O. 49   | 17,6      | I.            | 18. | 27 | 9       | 21,8      | 7        |
| 24       | 0.          | 32. | 9  | I. 16   | 9,0       | I.           | 3.  | 56 | O. 48   | 17,8      | I.            | 18. | 36 | 8       | 21,9      | 6        |
| 25       | 0.          | 33. | 24 | I. 15   | 9,4       | I.           | 4.  | 44 | O. 47   | 18,1      | I.            | 18. | 44 | 7       | 21,9      | 5        |
| 26       | 0.          | 34. | 39 | I. 15   | 9,7       | I.           | 5.  | 31 | O. 45   | 18,3      | I.            | 18. | 51 | 5       | 22,0      | 4        |
| 27       | 0.          | 35. | 53 | I. 14   | 10,0      | I.           | 6.  | 16 | O. 45   | 18,5      | I.            | 18. | 56 | 3       | 22,0      | 3        |
| 28       | 0.          | 37. | 6  | I. 13   | 10,4      | I.           | 7.  | 1  | O. 44   | 18,7      | I.            | 18. | 59 | 2       | 22,0      | 2        |
| 29       | 0.          | 38. | 19 | I. 13   | 10,7      | I.           | 7.  | 45 | O. 42   | 18,9      | I.            | 19. | 1  | 1       | 22,0      | 1        |
| 30       | 0.          | 39. | 31 | I. 12   | 11,0      | I.           | 8.  | 27 |         | 19,0      | I.            | 19. | 2  | 1       | 22,0      | 0        |
|          | Sig. XI. S. |     |    |         | —         | Sig. X. S.   |     |    |         | —         | Sig. IX. S.   |     |    |         | —         |          |
|          | Sig. V. N.  |     |    |         |           | Sig. IV. N.  |     |    |         | —         | Sig. III. N.  |     |    |         | —         |          |

For any time before 1750, the Secular Variation changes the Sign.



## TABLES OF JUPITER.

TABLE XXIII. Reduction to the Ecliptic, and the Logarithm of the Cosine of the Heliocentric Latitude.

| ARGUMENT XII. |                          |                                 |                          |                                 |                          |                                 |          |
|---------------|--------------------------|---------------------------------|--------------------------|---------------------------------|--------------------------|---------------------------------|----------|
| Degrees.      | Reduct.<br>to<br>Eclipt. | Log. cofin.<br><br>Lat. helioc. | Reduct.<br>to<br>Eclipt. | Log. cofin.<br><br>Lat. helioc. | Reduct.<br>to<br>Eclipt. | Log. cofin.<br><br>Lat. helioc. | Degrees. |
|               | Sig. O                   |                                 | Sig. I.                  |                                 | Sig. II.                 |                                 |          |
|               | Sig. VI.                 |                                 | Sig. VII.                |                                 | Sig. VIII.               |                                 |          |
|               | SEC.                     |                                 | SEC.                     |                                 | SEC.                     |                                 |          |
| 0             | 0,0                      | 0,000000                        | 23,6                     | 9,999971                        | 23,6                     | 9,999914                        | 30       |
| 1             | 0,9                      | 0,000000                        | 24,0                     | 9,999970                        | 23,1                     | 9,999912                        | 29       |
| 2             | 1,9                      | 0,000000                        | 24,5                     | 9,999968                        | 22,6                     | 9,999910                        | 28       |
| 3             | 2,8                      | 0,000000                        | 24,9                     | 9,999966                        | 22,1                     | 9,999909                        | 27       |
| 4             | 3,8                      | 9,999999                        | 25,3                     | 9,999964                        | 21,5                     | 9,999907                        | 26       |
| 5             | 4,7                      | 9,999999                        | 25,6                     | 9,999962                        | 20,9                     | 9,999906                        | 25       |
| 6             | 5,7                      | 9,999999                        | 25,9                     | 9,999960                        | 20,3                     | 9,999904                        | 24       |
| 7             | 6,6                      | 9,999998                        | 26,2                     | 9,999958                        | 19,6                     | 9,999903                        | 23       |
| 8             | 7,5                      | 9,999998                        | 26,4                     | 9,999957                        | 19,0                     | 9,999901                        | 22       |
| 9             | 8,4                      | 9,999997                        | 26,7                     | 9,999955                        | 18,2                     | 9,999900                        | 21       |
| 10            | 9,3                      | 9,999997                        | 26,8                     | 9,999953                        | 17,5                     | 9,999899                        | 20       |
| 11            | 10,2                     | 9,999996                        | 27,0                     | 9,999951                        | 16,8                     | 9,999897                        | 19       |
| 12            | 11,1                     | 9,999995                        | 27,1                     | 9,999949                        | 16,0                     | 9,999896                        | 18       |
| 13            | 12,0                     | 9,999994                        | 27,2                     | 9,999947                        | 15,2                     | 9,999895                        | 17       |
| 14            | 12,8                     | 9,999993                        | 27,2                     | 9,999945                        | 14,4                     | 9,999895                        | 16       |
| 15            | 13,6                     | 9,999992                        | 27,2                     | 9,999943                        | 13,6                     | 9,999893                        | 15       |
| 16            | 14,4                     | 9,999991                        | 27,2                     | 9,999941                        | 12,8                     | 9,999892                        | 14       |
| 17            | 15,2                     | 9,999990                        | 27,2                     | 9,999939                        | 12,0                     | 9,999891                        | 13       |
| 18            | 16,0                     | 9,999989                        | 27,1                     | 9,999937                        | 11,1                     | 9,999890                        | 12       |
| 19            | 16,8                     | 9,999988                        | 27,0                     | 9,999935                        | 10,2                     | 9,999889                        | 11       |
| 20            | 17,5                     | 9,999987                        | 26,8                     | 9,999933                        | 9,3                      | 9,999889                        | 10       |
| 21            | 18,2                     | 9,999985                        | 26,7                     | 9,999931                        | 8,4                      | 9,999888                        | 9        |
| 22            | 19,0                     | 9,999984                        | 26,4                     | 9,999929                        | 7,5                      | 9,999887                        | 8        |
| 23            | 19,6                     | 9,999982                        | 26,2                     | 9,999927                        | 6,6                      | 9,999887                        | 7        |
| 24            | 20,3                     | 9,999981                        | 25,9                     | 9,999925                        | 5,7                      | 9,999887                        | 6        |
| 25            | 20,9                     | 9,999980                        | 25,6                     | 9,999923                        | 4,7                      | 9,999886                        | 5        |
| 26            | 21,5                     | 9,999978                        | 25,3                     | 9,999921                        | 3,8                      | 9,999886                        | 4        |
| 27            | 22,1                     | 9,999976                        | 24,9                     | 9,999919                        | 2,8                      | 9,999886                        | 3        |
| 28            | 22,6                     | 9,999974                        | 24,5                     | 9,999917                        | 1,9                      | 9,999885                        | 2        |
| 29            | 23,1                     | 9,999973                        | 24,0                     | 9,999916                        | 0,9                      | 9,999885                        | 1        |
| 30            | 23,6                     | 9,999971                        | 23,6                     | 9,999914                        | 0,0                      | 9,999885                        | 0        |
|               | Sig. XI. +               |                                 | Sig. X. +                |                                 | Sig. IX. +               |                                 |          |
|               | Sig. V. +                |                                 | Sig. IV. +               |                                 | Sig. III. +              |                                 |          |



TABLE I. *Yield of the main crop of wheat with the application of the*

| Year | Fertilizer | Yield of wheat |            | Yield of straw |            | Yield of hay |            | Yield of silage |            |
|------|------------|----------------|------------|----------------|------------|--------------|------------|-----------------|------------|
|      |            | Per acre       | Per bushel | Per acre       | Per bushel | Per acre     | Per bushel | Per acre        | Per bushel |
| 1870 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1871 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1872 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1873 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1874 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1875 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1876 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1877 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1878 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1879 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
| 1880 | A          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | B          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | C          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |
|      | D          | 10.0           | 1.00       | 10.0           | 1.00       | 10.0         | 1.00       | 10.0            | 1.00       |



## TABLES OF SATURN.

TABLE I. *Epochs* of the Mean Longitude of Saturn, with the Arguments of the Equations.

|            | YEARS. | Mean Long.       | Aphelion.     | Node.         |
|------------|--------|------------------|---------------|---------------|
|            |        | S. D. M. S.      | S. D. M. S.   | S. D. M. S.   |
| Nat. J. C. | 0      | 2. 0. 0. 22,4    | 7. 26. 2. 7   | 3. 6. 10. 10  |
|            | 100    | 6. 23. 31. 58,8  | 7. 27. 52. 14 | 3. 7. 2. 45   |
|            | 1400   | 8. 29. 22. 52,1  | 8. 21. 43. 44 | 3. 18. 26. 20 |
|            | 1500   | 1. 22. 54. 28,5  | 8. 23. 33. 51 | 3. 19. 18. 55 |
| B. N. S.   | 1600   | 6. 16. 5. 59,0   | 8. 25. 23. 56 | 3. 20. 11. 29 |
| C          | 1700   | 11. 9. 35. 34,8  | 8. 27. 14. 4  | 3. 21. 4. 5   |
| B.         | 1740   | 3. 19. 0. 13,4   | 8. 27. 58. 6  | 3. 21. 25. 7  |
| B.         | 1760   | 11. 23. 42. 32,6 | 8. 28. 20. 8  | 3. 21. 35. 38 |
| B.         | 1780   | 7. 28. 24. 51,9  | 8. 28. 42. 9  | 3. 21. 46. 9  |
| B.         | 1786   | 10. 11. 48. 33,4 | 8. 28. 48. 46 | 3. 21. 49. 19 |
|            | 1787   | 10. 24. 2. 10,2  | 8. 28. 49. 52 | 3. 21. 49. 50 |
|            | 1788   | 11. 6. 17. 47,6  | 8. 28. 50. 58 | 3. 21. 50. 21 |
|            | 1789   | 11. 18. 31. 24,4 | 8. 28. 52. 4  | 3. 21. 50. 33 |
|            | 1790   | 0. 0. 45. 1,3    | 8. 28. 53. 10 | 3. 21. 51. 24 |
| B.         | 1791   | 0. 12. 58. 38,1  | 8. 28. 54. 16 | 3. 21. 51. 56 |
|            | 1792   | 0. 25. 14. 15,5  | 8. 28. 55. 22 | 3. 21. 52. 27 |
|            | 1793   | 1. 7. 27. 52,3   | 8. 28. 56. 28 | 3. 21. 52. 59 |
|            | 1794   | 1. 19. 41. 29,1  | 8. 28. 57. 34 | 3. 21. 53. 30 |
|            | 1795   | 2. 1. 55. 5,9    | 8. 28. 58. 40 | 3. 21. 54. 2  |
| B.         | 1796   | 2. 14. 10. 43,3  | 8. 28. 59. 46 | 3. 21. 54. 33 |
|            | 1797   | 2. 26. 24. 20,2  | 8. 29. 0. 52  | 3. 21. 55. 5  |
|            | 1798   | 3. 8. 37. 57,0   | 8. 29. 1. 58  | 3. 21. 55. 36 |
|            | 1799   | 3. 20. 51. 33,8  | 8. 29. 3. 4   | 3. 21. 56. 8  |
| C.         | 1800   | 4. 3. 5. 10,6    | 8. 29. 4. 10  | 3. 21. 56. 40 |
| B.         | 1801   | 4. 15. 18. 47,4  | 8. 29. 5. 17  | 3. 21. 57. 11 |
|            | 1802   | 4. 27. 32. 24,2  | 8. 29. 6. 23  | 3. 21. 57. 43 |
|            | 1803   | 5. 9. 46. 1,1    | 8. 29. 7. 29  | 3. 21. 58. 14 |
|            | 1804   | 5. 22. 1. 38,5   | 8. 29. 8. 35  | 3. 21. 58. 46 |
|            | 1805   | 6. 4. 15. 15,3   | 8. 29. 9. 41  | 3. 21. 59. 17 |
| B.         | 1806   | 6. 16. 28. 52,1  | 8. 29. 10. 47 | 3. 21. 59. 49 |
|            | 1807   | 6. 28. 42. 28,9  | 8. 29. 11. 53 | 3. 22. 0. 20  |
|            | 1808   | 7. 10. 58. 6,3   | 8. 29. 12. 59 | 3. 22. 0. 52  |
|            | 1809   | 7. 23. 11. 43,1  | 8. 29. 14. 5  | 3. 22. 1. 23  |
|            | 1810   | 8. 5. 25. 20,0   | 8. 29. 15. 11 | 3. 22. 1. 55  |
| B.         | 1811   | 8. 17. 38. 56,8  | 8. 29. 16. 17 | 3. 22. 2. 27  |
|            | 1812   | 8. 29. 54. 34,2  | 8. 29. 17. 23 | 3. 22. 2. 58  |
|            | 1813   | 9. 12. 8. 11,0   | 8. 29. 18. 29 | 3. 22. 3. 30  |
|            | 1814   | 9. 24. 21. 47,8  | 8. 29. 19. 35 | 3. 22. 4. 1   |
|            | 1815   | 10. 6. 35. 24,6  | 8. 29. 20. 41 | 3. 22. 4. 33  |
| B.         | 1816   | 10. 18. 51. 2,1  | 8. 29. 21. 47 | 3. 22. 5. 4   |
|            | 1817   | 11. 1. 4. 38,9   | 8. 29. 22. 53 | 3. 22. 5. 36  |
|            | 1818   | 11. 13. 18. 15,7 | 8. 29. 23. 59 | 3. 22. 6. 7   |
|            | 1819   | 11. 25. 31. 52,5 | 8. 29. 25. 5  | 3. 22. 6. 39  |
| B.         | 1820   | 0. 7. 47. 29,9   | 8. 29. 26. 12 | 3. 22. 7. 10  |



TABLE I. *Epochs of the Mean Longitude of Saturn, with the Arguments of the Equations.*

| YEARS.        | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. |
|---------------|-------------|--------------|-------------|------------|-------------|
| Nat. J. C. 0  | 2487        | 9949         | 9703        | 220        | 266         |
| 100           | 2841        | 6367         | 2549        | 974        | 942         |
| 1400          | 7451        | 9794         | 9549        | 779        | 732         |
| 1500          | 7806        | 6212         | 2395        | 533        | 408         |
| B. N. S. 1600 | 8145        | 2625         | 5232        | 286        | 079         |
| C. 1700       | 8500        | 9043         | 809         | 040        | 755         |
| B. 1740       | 8641        | 5610         | 1217        | 742        | 425         |
| B. 1760       | 8712        | 8893         | 7787        | 093        | 760         |
| B. 1780       | 8783        | 2177         | 4356        | 444        | 096         |
| 1786          | 1804        | 3162         | 6326        | 549        | 496         |
| 1787          | 2308        | 3326         | 6655        | 566        | 562         |
| B. 1788       | 2812        | 3490         | 6983        | 584        | 630         |
| 1789          | 3315        | 3654         | 7312        | 602        | 696         |
| 1790          | 3819        | 3818         | 7640        | 619        | 763         |
| 1791          | 4322        | 3982         | 7969        | 637        | 830         |
| B. 1792       | 4826        | 4146         | 8297        | 654        | 897         |
| 1793          | 5329        | 4310         | 8625        | 672        | 964         |
| 1794          | 5833        | 4474         | 8954        | 689        | 030         |
| 1795          | 6337        | 4639         | 9282        | 707        | 097         |
| B. 1796       | 6840        | 4803         | 9611        | 724        | 164         |
| 1797          | 7344        | 4967         | 9939        | 742        | 231         |
| 1798          | 7847        | 5131         | 0268        | 760        | 297         |
| 1799          | 8351        | 5295         | 0596        | 777        | 364         |
| C. 1800       | 8854        | 5459         | 0925        | 795        | 431         |
| 1801          | 9358        | 5624         | 1253        | 812        | 498         |
| 1802          | 9861        | 5788         | 1582        | 830        | 564         |
| 1803          | 0365        | 5952         | 1910        | 847        | 631         |
| B. 1804       | 0868        | 6116         | 2238        | 865        | 698         |
| 1805          | 1372        | 6280         | 2567        | 882        | 765         |
| 1806          | 1876        | 6444         | 2895        | 900        | 831         |
| 1807          | 2379        | 6609         | 3224        | 917        | 898         |
| B. 1808       | 2883        | 6773         | 3552        | 935        | 965         |
| 1809          | 3386        | 6937         | 3881        | 952        | 032         |
| 1810          | 3890        | 7101         | 4209        | 970        | 099         |
| 1811          | 4393        | 7265         | 4538        | 988        | 165         |
| B. 1812       | 4897        | 7429         | 4866        | 005        | 232         |
| 1813          | 5401        | 7593         | 5194        | 023        | 299         |
| 1814          | 5904        | 7757         | 5523        | 040        | 366         |
| 1815          | 6408        | 7922         | 5851        | 058        | 432         |
| B. 1816       | 6911        | 8086         | 6180        | 075        | 499         |
| 1817          | 7415        | 8250         | 6508        | 093        | 566         |
| 1818          | 7918        | 8414         | 6837        | 110        | 633         |
| 1819          | 8422        | 8578         | 7165        | 128        | 699         |
| B. 1820       | 8925        | 8742         | 7494        | 145        | 766         |



TABLE II. Mean Motion of Saturn for *Julian Years*, with the Arguments of the Equations.

|             | YEARS. | Mot. in Long. |     |     |      | Mot. Aphelion. |     |     |    | Mot. Node. |     |     |    |
|-------------|--------|---------------|-----|-----|------|----------------|-----|-----|----|------------|-----|-----|----|
|             |        | S.            | D.  | M.  | S.   | S.             | D.  | M.  | S. | S.         | D.  | M.  | S. |
| B.          | 1      | 0.            | 12. | 13. | 36,8 | 0.             | 0.  | 1.  | 6  | 0.         | 0.  | 0.  | 32 |
|             | 2      | 0.            | 24. | 27. | 13,6 | 0.             | 0.  | 2.  | 12 | 0.         | 0.  | 1.  | 3  |
|             | 3      | 1.            | 6.  | 40. | 50,4 | 0.             | 0.  | 3.  | 18 | 0.         | 0.  | 1.  | 35 |
|             | 4      | 1.            | 18. | 56. | 27,9 | 0.             | 0.  | 4.  | 24 | 0.         | 0.  | 2.  | 6  |
|             | 5      | 2.            | 1.  | 10. | 4,7  | 0.             | 0.  | 5.  | 30 | 0.         | 0.  | 2.  | 38 |
|             | 6      | 2.            | 13. | 23. | 41,5 | 0.             | 0.  | 6.  | 36 | 0.         | 0.  | 3.  | 9  |
|             | 7      | 2.            | 25. | 37. | 18,3 | 0.             | 0.  | 7.  | 42 | 0.         | 0.  | 3.  | 41 |
|             | 8      | 3.            | 7.  | 52. | 55,7 | 0.             | 0.  | 8.  | 49 | 0.         | 0.  | 4.  | 12 |
|             | 9      | 3.            | 20. | 6.  | 32,5 | 0.             | 0.  | 9.  | 55 | 0.         | 0.  | 4.  | 44 |
|             | 10     | 4.            | 2.  | 20. | 9,3  | 0.             | 0.  | 11. | 1  | 0.         | 0.  | 5.  | 16 |
|             | 11     | 4.            | 14. | 33. | 46,2 | 0.             | 0.  | 12. | 7  | 0.         | 0.  | 5.  | 47 |
|             | 12     | 4.            | 26. | 49. | 23,6 | 0.             | 0.  | 13. | 13 | 0.         | 0.  | 6.  | 19 |
|             | 13     | 5.            | 9.  | 3.  | 0,4  | 0.             | 0.  | 14. | 19 | 0.         | 0.  | 6.  | 50 |
|             | 14     | 5.            | 21. | 16. | 37,2 | 0.             | 0.  | 15. | 25 | 0.         | 0.  | 7.  | 22 |
|             | 15     | 6.            | 3.  | 30. | 14,0 | 0.             | 0.  | 16. | 31 | 0.         | 0.  | 7.  | 53 |
|             | 16     | 6.            | 15. | 45. | 51,4 | 0.             | 0.  | 17. | 37 | 0.         | 0.  | 8.  | 25 |
|             | 17     | 6.            | 27. | 59. | 28,2 | 0.             | 0.  | 18. | 43 | 0.         | 0.  | 8.  | 56 |
|             | 18     | 7.            | 10. | 13. | 5,1  | 0.             | 0.  | 19. | 49 | 0.         | 0.  | 9.  | 28 |
|             | 19     | 7.            | 22. | 26. | 41,9 | 0.             | 0.  | 20. | 55 | 0.         | 0.  | 9.  | 59 |
|             | 20     | 8.            | 4.  | 42. | 19,3 | 0.             | 0.  | 22. | 1  | 0.         | 0.  | 10. | 31 |
| Bifextiles. | 40     | 4.            | 9.  | 24. | 38,6 | 0.             | 0.  | 44. | 3  | 0.         | 0.  | 21. | 2  |
|             | 60     | 0.            | 14. | 6.  | 57,8 | 0.             | 1.  | 6.  | 4  | 0.         | 0.  | 31. | 33 |
|             | 80     | 8.            | 18. | 49. | 17,1 | 0.             | 1.  | 28. | 6  | 0.         | 0.  | 42. | 4  |
|             | 100    | 4.            | 23. | 31. | 36,4 | 0.             | 1.  | 50. | 7  | 0.         | 0.  | 52. | 35 |
|             | 200    | 9.            | 17. | 3.  | 12,8 | 0.             | 3.  | 40. | 14 | 0.         | 1.  | 45. | 10 |
|             | 300    | 2.            | 10. | 34. | 49,2 | 0.             | 5.  | 30. | 21 | 0.         | 2.  | 37. | 45 |
|             | 400    | 7.            | 4.  | 6.  | 25,6 | 0.             | 7.  | 20. | 28 | 0.         | 3.  | 30. | 20 |
|             | 500    | 11.           | 27. | 38. | 2,0  | 0.             | 9.  | 10. | 35 | 0.         | 4.  | 22. | 55 |
|             | 600    | 4.            | 21. | 9.  | 38,5 | 0.             | 11. | 0.  | 42 | 0.         | 5.  | 15. | 30 |
|             | 700    | 9.            | 14. | 41. | 14,9 | 0.             | 12. | 50. | 49 | 0.         | 6.  | 8.  | 5  |
|             | 800    | 2.            | 8.  | 12. | 51,3 | 0.             | 14. | 40. | 56 | 0.         | 7.  | 0.  | 40 |
|             | 900    | 7.            | 1.  | 44. | 27,7 | 0.             | 16. | 31. | 3  | 0.         | 7.  | 53. | 15 |
|             | 1000   | 11.           | 25. | 16. | 4,1  | 0.             | 18. | 21. | 10 | 0.         | 8.  | 45. | 50 |
|             | 2000   | 11.           | 20. | 32. | 8,2  | 1.             | 6.  | 42. | 20 | 0.         | 17. | 31. | 40 |
|             | 3000   | 11.           | 15. | 48. | 12,3 | 1.             | 25. | 3.  | 29 | 0.         | 26. | 17. | 30 |
|             | 4000   | 11.           | 11. | 4.  | 16,4 | 2.             | 13. | 24. | 39 | 1.         | 5.  | 3.  | 20 |
|             | 5000   | 11.           | 6.  | 20. | 20,5 | 3.             | 1.  | 45. | 49 | 1.         | 13. | 49. | 10 |
|             | 6000   | 11.           | 1.  | 36. | 24,6 | 3.             | 20. | 6.  | 58 | 1.         | 22. | 35. | 0  |



TABLE II. Mean Motion of Saturn for *Julian Years*, with the Arguments of the Equations.

|            | YEARS. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. |
|------------|--------|-------------|--------------|-------------|------------|-------------|
|            | 1      | 0504        | 0164         | 0328        | 018        | 067         |
|            | 2      | 1007        | 0328         | 0657        | 035        | 134         |
|            | 3      | 1511        | 0493         | 0985        | 053        | 200         |
| B.         | 4      | 2014        | 0657         | 1314        | 070        | 267         |
|            | 5      | 2518        | 0821         | 1642        | 088        | 334         |
|            | 6      | 3021        | 0985         | 1971        | 105        | 401         |
|            | 7      | 3525        | 1149         | 2299        | 123        | 467         |
| B.         | 8      | 4028        | 1313         | 2628        | 140        | 534         |
|            | 9      | 4532        | 1478         | 2956        | 158        | 601         |
|            | 10     | 5035        | 1642         | 3285        | 175        | 668         |
|            | 11     | 5539        | 1806         | 3613        | 193        | 734         |
| B.         | 12     | 6043        | 1970         | 3942        | 210        | 801         |
|            | 13     | 6546        | 2134         | 4270        | 228        | 868         |
|            | 14     | 7050        | 2298         | 4598        | 245        | 935         |
|            | 15     | 7553        | 2463         | 4927        | 263        | 001         |
| B.         | 16     | 8057        | 2627         | 5255        | 281        | 068         |
|            | 17     | 8560        | 2791         | 5584        | 298        | 135         |
|            | 18     | 9064        | 2955         | 5912        | 316        | 202         |
|            | 19     | 9567        | 3119         | 6241        | 333        | 268         |
| B.         | 20     | 0071        | 3283         | 6569        | 351        | 335         |
| Bisexiles. | 40     | 0142        | 6567         | 3138        | 702        | 670         |
|            | 60     | 0213        | 9850         | 9707        | 052        | 006         |
|            | 80     | 0284        | 3134         | 6277        | 403        | 341         |
|            | 100    | 0355        | 6417         | 2846        | 754        | 676         |
|            | 200    | 0709        | 2835         | 5692        | 508        | 352         |
|            | 300    | 1064        | 9252         | 8538        | 262        | 028         |
|            | 400    | 1418        | 5670         | 1385        | 017        | 705         |
|            | 500    | 1773        | 2087         | 4230        | 771        | 381         |
|            | 600    | 2128        | 8505         | 7077        | 525        | 057         |
|            | 700    | 2482        | 4922         | 9922        | 279        | 733         |
|            | 800    | 2837        | 1340         | 2769        | 033        | 409         |
|            | 900    | 3191        | 7757         | 5615        | 787        | 085         |
|            | 1000   | 3546        | 4175         | 8461        | 542        | 761         |
|            | 2000   | 7092        | 8350         | 6923        | 083        | 523         |
|            | 3000   | 0638        | 2525         | 5384        | 625        | 284         |
|            | 4000   | 4184        | 6700         | 3845        | 166        | 045         |
|            | 5000   | 7730        | 0875         | 2307        | 708        | 806         |
|            | 6000   | 1276        | 5049         | 0768        | 249        | 568         |



## TABLES OF SATURN.

TABLE III. Mean Motion of Saturn for *Months*, with the Arguments of the Equations.

| <i>Months.</i> | Mot. Long. |     |      | Aphel. | Node. | ARG. | ARG. | ARG. | ARG. | ARG. |
|----------------|------------|-----|------|--------|-------|------|------|------|------|------|
|                | D.         | M.  | S.   | SEC.   | SEC.  | II.  | III. | IV.  | V.   | VI.  |
| January        | 0.         | 0.  | 0,0  | 0      | 0     | 0    | 0    | 00   | 0    | 0    |
| February       | 1.         | 2.  | 18,4 | 6      | 3     | 43   | 14   | 28   | 1    | 6    |
| March          | 1.         | 58. | 35,0 | 10     | 5     | 81   | 27   | 53   | 3    | 11   |
| April          | 3.         | 0.  | 53,5 | 17     | 8     | 124  | 41   | 81   | 4    | 17   |
| May            | 4.         | 1.  | 11,3 | 21     | 10    | 165  | 54   | 108  | 6    | 22   |
| June           | 5.         | 3.  | 29,7 | 27     | 13    | 208  | 68   | 136  | 7    | 28   |
| July           | 6.         | 3.  | 47,5 | 33     | 16    | 250  | 81   | 163  | 9    | 33   |
| August         | 7.         | 6.  | 5,9  | 39     | 18    | 292  | 95   | 191  | 10   | 39   |
| September      | 8.         | 8.  | 24,3 | 44     | 21    | 335  | 109  | 219  | 12   | 45   |
| October        | 9.         | 8.  | 42,2 | 49     | 24    | 376  | 123  | 246  | 13   | 50   |
| November       | 10.        | 11. | 0,6  | 55     | 26    | 419  | 137  | 273  | 15   | 56   |
| December       | 11.        | 11. | 18,4 | 60     | 29    | 460  | 150  | 301  | 16   | 61   |

TABLE IV. Mean Motion of Saturn for *Hours* and *Minutes*.

| Hours. | Mot. Long. |      | Hours. | Mot. Long. |      | Min. | Mot. Lon. |  | Min. | Mot. Lon. |     |
|--------|------------|------|--------|------------|------|------|-----------|--|------|-----------|-----|
|        | M.         | S.   |        | M.         | S.   |      | SEC.      |  |      | SEC.      |     |
| 1      | 0.         | 5,0  | 13     | 1.         | 53,  | 1    | 0,1       |  | 27   |           | 2,2 |
| 2      | 0.         | 10,0 | 14     | 1.         | 10,3 | 2    | 0,2       |  | 30   |           | 2,5 |
| 3      | 0.         | 15,1 | 15     | 1.         | 15,4 | 3    | 0,3       |  | 33   |           | 2,7 |
| 4      | 0.         | 20,1 | 16     | 1.         | 20,4 | 4    | 0,3       |  | 36   |           | 3,0 |
| 5      | 0.         | 25,1 | 17     | 1.         | 25,4 | 5    | 0,4       |  | 39   |           | 3,2 |
| 6      | 0.         | 30,1 | 18     | 1.         | 30,4 | 6    | 0,5       |  | 42   |           | 3,5 |
| 7      | 0.         | 35,2 | 19     | 1.         | 35,5 | 9    | 0,7       |  | 45   |           | 3,7 |
| 8      | 0.         | 40,2 | 20     | 1.         | 40,5 | 12   | 1,0       |  | 48   |           | 4,0 |
| 9      | 0.         | 45,2 | 21     | 1.         | 45,5 | 15   | 1,3       |  | 51   |           | 4,2 |
| 10     | 0.         | 50,2 | 22     | 1.         | 50,5 | 18   | 1,5       |  | 54   |           | 4,5 |
| 11     | 0.         | 55,3 | 23     | 1.         | 55,6 | 21   | 1,8       |  | 57   |           | 4,7 |
| 12     | 1.         | 0,3  | 24     | 2.         | 0,6  | 24   | 2,0       |  | 60   |           | 5,0 |



TABLE V. Mean Motion of Saturn for *Days*, with the Arguments of the Equations.

| Days of the Month. | Motion in Longitude. |     |      | Mot. Aphel. | Mot. Node. | Arg. II. | Arg. III. | Arg. IV. | Arg. V. | Arg. VI. |
|--------------------|----------------------|-----|------|-------------|------------|----------|-----------|----------|---------|----------|
|                    | D.                   | M.  | S.   | SEC.        | SEC.       |          |           |          |         |          |
| 1                  | 0.                   | 2.  | 0,6  | 0           | 0          | 1        | 0         | 1        | 0       | 0        |
| 2                  | 0.                   | 4.  | 1,2  | 0           | 0          | 3        | 1         | 2        | 0       | 0        |
| 3                  | 0.                   | 6.  | 1,8  | 1           | 0          | 4        | 1         | 3        | 0       | 1        |
| 4                  | 0.                   | 8.  | 2,4  | 1           | 0          | 6        | 2         | 4        | 0       | 1        |
| 5                  | 0.                   | 10. | 3,0  | 1           | 0          | 7        | 2         | 5        | 0       | 1        |
| 6                  | 0.                   | 12. | 3,6  | 1           | 1          | 8        | 3         | 5        | 0       | 1        |
| 7                  | 0.                   | 14. | 4,2  | 1           | 1          | 10       | 3         | 6        | 0       | 1        |
| 8                  | 0.                   | 16. | 4,8  | 2           | 1          | 11       | 4         | 7        | 0       | 2        |
| 9                  | 0.                   | 18. | 5,3  | 2           | 1          | 12       | 4         | 8        | 0       | 2        |
| 10                 | 0.                   | 20. | 5,9  | 2           | 1          | 14       | 5         | 9        | 0       | 2        |
| 11                 | 0.                   | 22. | 6,5  | 2           | 1          | 15       | 5         | 10       | 1       | 2        |
| 12                 | 0.                   | 24. | 7,1  | 2           | 1          | 17       | 5         | 11       | 1       | 2        |
| 13                 | 0.                   | 26. | 7,7  | 2           | 1          | 18       | 6         | 12       | 1       | 2        |
| 14                 | 0.                   | 28. | 8,3  | 3           | 1          | 19       | 6         | 13       | 1       | 2        |
| 15                 | 0.                   | 30. | 8,9  | 3           | 1          | 21       | 7         | 13       | 1       | 3        |
| 16                 | 0.                   | 32. | 9,5  | 3           | 1          | 22       | 7         | 14       | 1       | 3        |
| 17                 | 0.                   | 34. | 10,1 | 3           | 1          | 23       | 8         | 15       | 1       | 3        |
| 18                 | 0.                   | 36. | 10,7 | 3           | 2          | 25       | 8         | 16       | 1       | 3        |
| 19                 | 0.                   | 38. | 11,3 | 4           | 2          | 26       | 9         | 17       | 1       | 3        |
| 20                 | 0.                   | 40. | 11,9 | 4           | 2          | 28       | 9         | 18       | 1       | 4        |
| 21                 | 0.                   | 42. | 12,5 | 4           | 2          | 29       | 9         | 19       | 1       | 4        |
| 22                 | 0.                   | 44. | 13,1 | 4           | 2          | 30       | 10        | 20       | 1       | 4        |
| 23                 | 0.                   | 46. | 13,7 | 4           | 2          | 32       | 10        | 21       | 1       | 4        |
| 24                 | 0.                   | 48. | 14,3 | 4           | 2          | 33       | 11        | 22       | 1       | 4        |
| 25                 | 0.                   | 50. | 14,8 | 5           | 2          | 35       | 11        | 23       | 1       | 5        |
| 26                 | 0.                   | 52. | 15,4 | 5           | 2          | 36       | 12        | 23       | 1       | 5        |
| 27                 | 0.                   | 54. | 16,0 | 5           | 2          | 37       | 12        | 24       | 1       | 5        |
| 28                 | 0.                   | 56. | 16,6 | 5           | 2          | 39       | 13        | 25       | 1       | 5        |
| 29                 | 0.                   | 58. | 17,2 | 5           | 3          | 40       | 13        | 26       | 1       | 5        |
| 30                 | 1.                   | 0.  | 17,8 | 6           | 3          | 41       | 13        | 27       | 1       | 5        |
| 31                 | 1.                   | 2.  | 18,4 | 6           | 3          | 43       | 14        | 28       | 1       | 6        |

In the Months JANUARY and FEBRUARY in a Bissextile Year, subtract 1 from the given Day of the Month.



TABLE VI. The great Inequality of the Motion of Saturn, with the Corrections of the Arguments which regulate the other Inequalities.

| Years. | Equations  | Diff. | Change for<br>half period. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. |
|--------|------------|-------|----------------------------|-------------|--------------|-------------|------------|-------------|
|        | M. S.      | SEC.  | SEC.                       |             |              |             |            |             |
| 1550   | + 3. 3,8   | 201,8 | 2,86                       | - 2         | - 3          | - 7         | + 0        | - 1         |
| 1560   | - 0. 18,0  | 201,3 | 0,28                       | + 0         | + 0          | + 1         | - 0        | + 0         |
| 1570   | 3. 39,3    | 200,0 | 3,42                       | 2           | 4            | 8           | - 1        | + 1         |
| 1580   | - 6. 59,2  | 198,0 | 6,54                       | 5           | 8            | 16          | - 1        | 1           |
| 1590   | 10. 17,2   | 194,9 | 9,63                       | 7           | 12           | 23          | - 2        | 2           |
| 1600   | 13. 32,1   | 190,9 | 12,68                      | 9           | 15           | 30          | - 2        | 2           |
| 1610   | - 16. 43,0 | 186,2 | 15,67                      | 11          | 19           | 38          | - 3        | 3           |
| 1620   | 19. 49,2   | 180,5 | 18,58                      | 13          | 22           | 45          | - 3        | 4           |
| 1630   | 22. 49,7   | 173,9 | 21,41                      | 15          | 26           | 51          | - 4        | 4           |
| 1640   | - 25. 43,6 | 166,5 | 24,13                      | 17          | 29           | 57          | - 4        | 5           |
| 1650   | 28. 30,1   | 158,5 | 26,75                      | 19          | 32           | 64          | - 4        | 5           |
| 1660   | 31. 8,6    | 149,6 | 29,29                      | 21          | 35           | 70          | - 5        | 6           |
| 1670   | - 33. 38,2 | 140,0 | 31,59                      | 22          | 38           | 76          | - 5        | 6           |
| 1680   | 35. 58,2   | 129,9 | 33,79                      | 24          | 40           | 81          | - 6        | 6           |
| 1690   | 38. 8,1    | 119,0 | 35,83                      | 25          | 43           | 86          | - 6        | 7           |
| 1700   | - 40. 7,1  | 107,6 | 37,71                      | 27          | 45           | 90          | - 6        | 7           |
| 1710   | 41. 54,7   | 95,8  | 39,41                      | 28          | 47           | 94          | - 7        | 7           |
| 1720   | 43. 30,5   | 83,5  | 40,93                      | 29          | 49           | 98          | - 7        | 8           |
| 1730   | - 44. 54,0 | 70,9  | 42,25                      | 30          | 50           | 101         | - 7        | 8           |
| 1740   | 46. 4,9    | 57,9  | 43,38                      | 30          | 52           | 104         | - 7        | 8           |
| 1750   | 47. 2,8    | 44,6  | 44,30                      | 31          | 53           | 106         | - 7        | 8           |
| 1760   | - 47. 47,4 | 31,1  | 45,02                      | 32          | 54           | 107         | - 8        | 9           |
| 1770   | 48. 18,5   | 17,5  | 45,52                      | 32          | 54           | 109         | - 8        | 9           |
| 1780   | 48. 36,0   | 3,9   | 45,81                      | 32          | 55           | 109         | - 8        | 9           |
| 1790   | 48. 39,9   |       | 45,89                      | 32          | 55           | 109         | - 8        | 9           |



TABLE VI. The great Inequality of the Motion of Saturn, with the Corrections of the Arguments which regulate the other Inequalities.

| Years. | Equation. | Diff. | Change for<br>half period. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. |
|--------|-----------|-------|----------------------------|-------------|--------------|-------------|------------|-------------|
|        | M. S.     | SEC.  | SEC.                       |             |              |             |            |             |
| 1790   | -48. 39,9 | 9,9   | 45,89                      | +32         | +55          | +109        | -8         | +9          |
| 1800   | 48. 30,0  | 23,4  | 45,75                      | 32          | 54           | 109         | -8         | 9           |
| 1810   | 48. 6,6   | 37,0  | 45,39                      | 32          | 54           | 108         | -8         | 9           |
| 1820   | -47. 29,6 | 50,2  | 44,83                      | 31          | 53           | 107         | -7         | 8           |
| 1830   | 46. 39,4  | 63,4  | 44,05                      | 31          | 52           | 105         | -7         | 8           |
| 1840   | 45. 36,0  | 76,1  | 43,07                      | 30          | 51           | 103         | -7         | 8           |
| 1850   | -44. 19,9 | 88,6  | 41,88                      | 29          | 50           | 100         | -7         | 8           |
| 1860   | 42. 51,3  | 100,4 | 40,51                      | 28          | 48           | 96          | -6         | 8           |
| 1870   | 41. 10,9  | 112,1 | 38,94                      | 27          | 46           | 93          | -6         | 7           |
| 1880   | -39. 18,8 | 122,9 | 37,18                      | 26          | 44           | 88          | -6         | 7           |
| 1890   | 37. 15,9  | 133,5 | 35,26                      | 25          | 42           | 84          | -5         | 7           |
| 1900   | 35. 2,4   | 143,0 | 33,17                      | 23          | 40           | 79          | -5         | 6           |
| 1910   | -32. 39,4 | 152,2 | 30,92                      | 22          | 37           | 73          | -5         | 5           |
| 1920   | 30. 7,2   | 160,6 | 28,53                      | 20          | 34           | 68          | -4         | 5           |
| 1930   | 27. 26,6  | 168,2 | 26,00                      | 18          | 31           | 62          | -4         | 4           |
| 1940   | -24. 38,4 | 174,9 | 23,35                      | 16          | 28           | 55          | -3         | 4           |
| 1950   | 21. 43,5  | 181,0 | 20,60                      | 14          | 25           | 49          | -3         | 3           |
| 1960   | 18. 42,5  | 186,1 | 17,74                      | 12          | 21           | 42          | -3         | 3           |
| 1970   | -15. 36,4 | 190,4 | 14,81                      | 10          | 18           | 35          | -2         | 2           |
| 1980   | 12. 26,0  | 193,7 | 11,80                      | 8           | 14           | 28          | -2         | 2           |
| 1990   | 9. 12,3   | 196,1 | 8,74                       | 6           | 10           | 21          | -1         | 2           |
| 2000   | 5. 56,2   | 197,8 | 5,64                       | 4           | 7            | 13          | -1         | +1          |
| 2010   | -2. 38,4  | 198,3 | 2,51                       | +2          | +3           | +6          | -0         | +0          |
| 2020   | +0. 39,9  |       | 0,63                       | -0          | -1           | -2          | +0         | -1          |



TABLE VII. Equation of Saturn's Orbit for 1750, with the Secular Variation.

ARGUMENT I. *Long.  $\eta$  cor. by Tab. VI.—Aphelion, or mean Anomaly.*

| Degrees. | Sig. O.       |         |           | Sig. I.      |         |           | Degrees. |
|----------|---------------|---------|-----------|--------------|---------|-----------|----------|
|          | Equation.     | Diff.   | Sec. Var. | Equation.    | Diff.   | Sec. Var. |          |
|          | —             |         | +         | —            |         | +         |          |
|          | D. M. S.      | M. S.   | SEC.      | D. M. S.     | M. S.   | SEC.      |          |
| 0        | 0. 0. 0,0     | 6. 18,1 | 0,00      | 3. 2. 5,0    | 5. 34,9 | 48,84     | 30       |
| 1        | 0. 6. 18,1    | 6. 18,1 | 1,68      | 3. 7. 39,9   | 5. 32,0 | 50,36     | 29       |
| 2        | 0. 12. 36,2   | 6. 17,9 | 3,35      | 3. 13. 11,9  | 5. 29,1 | 51,88     | 28       |
| 3        | 0. 18. 54,1   | 6. 17,5 | 5,03      | 3. 18. 41,0  | 5. 26,0 | 53,38     | 27       |
| 4        | 0. 25. 11,6   | 6. 17,2 | 6,71      | 3. 24. 7,0   | 5. 22,9 | 54,87     | 26       |
| 5        | 0. 31. 28,8   | 6. 16,8 | 8,38      | 3. 29. 29,9  | 5. 19,7 | 56,35     | 25       |
| 6        | 0. 37. 45,6   | 6. 16,2 | 10,05     | 3. 34. 49,6  | 5. 16,4 | 57,82     | 24       |
| 7        | 0. 44. 1,8    | 6. 15,5 | 11,72     | 3. 40. 6,0   | 5. 13,0 | 59,28     | 23       |
| 8        | 0. 50. 17,3   | 6. 14,8 | 13,39     | 3. 45. 19,0  | 5. 9,5  | 60,72     | 22       |
| 9        | 0. 56. 32,1   | 6. 13,9 | 15,05     | 3. 50. 28,5  | 5. 5,9  | 62,16     | 21       |
| 10       | 1. 2. 46,0    | 6. 13,0 | 16,71     | 3. 55. 34,4  | 5. 2,3  | 63,57     | 20       |
| 11       | 1. 8. 59,0    | 6. 12,0 | 18,37     | 4. 0. 36,7   | 4. 58,6 | 64,98     | 19       |
| 12       | 1. 15. 11,0   | 6. 10,8 | 20,03     | 4. 5. 35,3   | 4. 54,7 | 66,37     | 18       |
| 13       | 1. 21. 21,8   | 6. 9,6  | 21,68     | 4. 10. 30,0  | 4. 50,8 | 67,75     | 17       |
| 14       | 1. 27. 31,4   | 6. 8,4  | 23,33     | 4. 15. 20,8  | 4. 46,9 | 69,11     | 16       |
| 15       | 1. 33. 39,8   | 6. 6,9  | 24,98     | 4. 20. 7,7   | 4. 42,7 | 70,46     | 15       |
| 16       | 1. 39. 46,7   | 6. 5,4  | 26,61     | 4. 24. 50,4  | 4. 38,6 | 71,79     | 14       |
| 17       | 1. 45. 52,1   | 6. 3,9  | 28,24     | 4. 29. 29,0  | 4. 34,3 | 73,10     | 13       |
| 18       | 1. 51. 56,0   | 6. 2,1  | 29,87     | 4. 34. 3,3   | 4. 30,1 | 74,40     | 12       |
| 19       | 1. 57. 58,1   | 6. 0,4  | 31,49     | 4. 38. 33,4  | 4. 25,6 | 75,69     | 11       |
| 20       | 2. 3. 58,5    | 5. 58,6 | 33,09     | 4. 42. 59,0  | 4. 21,1 | 76,96     | 10       |
| 21       | 2. 9. 57,1    | 5. 56,5 | 34,71     | 4. 47. 20,1  | 4. 16,5 | 78,21     | 9        |
| 22       | 2. 15. 53,6   | 5. 54,6 | 36,32     | 4. 51. 36,6  | 4. 11,9 | 79,44     | 8        |
| 23       | 2. 21. 48,2   | 5. 52,4 | 37,91     | 4. 55. 48,5  | 4. 7,2  | 80,65     | 7        |
| 24       | 2. 27. 40,6   | 5. 50,1 | 39,50     | 4. 59. 55,7  | 4. 2,3  | 81,85     | 6        |
| 25       | 2. 33. 30,7   | 5. 47,9 | 41,07     | 5. 3. 58,0   | 3. 57,5 | 83,02     | 5        |
| 26       | 2. 39. 18,6   | 5. 45,4 | 42,65     | 5. 7. 55,5   | 3. 52,5 | 84,18     | 4        |
| 27       | 2. 45. 4,0    | 5. 42,9 | 44,21     | 5. 11. 48,0  | 3. 47,5 | 85,32     | 3        |
| 28       | 2. 50. 46,9   | 5. 40,3 | 45,76     | 5. 15. 35,5  | 3. 42,3 | 86,44     | 2        |
| 29       | 2. 56. 27,2   | 5. 37,8 | 47,31     | 5. 19. 17,8  | 3. 37,2 | 87,54     | 1        |
| 30       | 3. 2. 5,0     |         | 48,84     | 5. 22. 55,0  |         | 88,61     | 0        |
|          | +<br>Sig. XI. |         | --        | +<br>Sig. X. |         | -         |          |



TABLE VII. Equation of Saturn's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. Long. $\frac{1}{2}$ cor. by Tab. VI.—Aphelion, or mean Anomaly. |               |         |           |                 |         |           |          |
|-----------------------------------------------------------------------------|---------------|---------|-----------|-----------------|---------|-----------|----------|
| Degrees.                                                                    | Sig. II.      |         |           | Sig. III.       |         |           | Degrees. |
|                                                                             | Equation.     | Diff.   | Sec. Var. | Equation.       | Diff.   | Sec. Var. |          |
|                                                                             | —             |         | +         | —               |         | +         |          |
|                                                                             | D. M. S.      | M. S.   | SEC.      | D. M. S.        | M. S.   | SEC.      |          |
| 0                                                                           | 5. 22. 55,0   | 3. 31,8 | 88,61     | 6. 25. 44,7     | 0. 24,7 | 109,44    | 30       |
| 1                                                                           | 5. 26. 26,8   | 3. 26,6 | 89,66     | 6. 26. 9,4      | 0. 17,9 | 109,69    | 29       |
| 2                                                                           | 5. 29. 53,4   | 3. 21,2 | 90,70     | 6. 26. 27,3     | 0. 10,7 | 109,91    | 28       |
| 3                                                                           | 5. 33. 14,6   | 3. 15,6 | 91,72     | 6. 26. 38,0     | 0. 3,7  | 110,10    | 27       |
| 4                                                                           | 5. 36. 30,2   | 3. 10,1 | 92,71     | 6. 26. 41,7     | 0. 3,3  | 110,24    | 26       |
| 5                                                                           | 5. 39. 40,3   | 3. 4,6  | 93,67     | 6. 26. 38,4     | 0. 10,4 | 110,37    | 25       |
| 6                                                                           | 5. 42. 44,9   | 2. 58,7 | 94,62     | 6. 26. 28,0     | 0. 17,6 | 110,45    | 24       |
| 7                                                                           | 5. 45. 43,6   | 2. 53,0 | 95,54     | 6. 26. 10,4     | 0. 24,7 | 110,51    | 23       |
| 8                                                                           | 5. 48. 36,6   | 2. 47,2 | 96,44     | 6. 25. 45,7     | 0. 31,9 | 110,53    | 22       |
| 9                                                                           | 5. 51. 23,8   | 2. 41,3 | 97,33     | 6. 25. 13,8     | 0. 39,1 | 110,51    | 21       |
| 10                                                                          | 5. 54. 5,1    | 2. 35,4 | 98,16     | 6. 24. 34,7     | 0. 46,2 | 110,46    | 20       |
| 11                                                                          | 5. 56. 40,5   | 2. 29,3 | 98,99     | 6. 23. 48,5     | 0. 53,5 | 110,37    | 19       |
| 12                                                                          | 5. 59. 9,8    | 2. 23,3 | 99,79     | 6. 22. 55,0     | 1. 0,6  | 110,25    | 18       |
| 13                                                                          | 6. 1. 33,1    | 2. 17,1 | 100,56    | 6. 21. 54,4     | 1. 7,9  | 110,10    | 17       |
| 14                                                                          | 6. 3. 50,2    | 2. 10,9 | 101,31    | 6. 20. 46,5     | 1. 15,2 | 109,91    | 16       |
| 15                                                                          | 6. 6. 1,1     | 2. 4,7  | 102,03    | 6. 19. 31,3     | 1. 22,4 | 109,68    | 15       |
| 16                                                                          | 6. 8. 5,8     | 1. 58,3 | 102,73    | 6. 18. 8,9      | 1. 29,5 | 109,42    | 14       |
| 17                                                                          | 6. 10. 4,1    | 1. 52,0 | 103,39    | 6. 16. 39,4     | 1. 36,8 | 109,12    | 13       |
| 18                                                                          | 6. 11. 56,1   | 1. 45,6 | 104,03    | 6. 15. 2,6      | 1. 44,1 | 108,79    | 12       |
| 19                                                                          | 6. 13. 41,7   | 1. 39,0 | 104,64    | 6. 13. 18,5     | 1. 51,2 | 108,41    | 11       |
| 20                                                                          | 6. 15. 20,7   | 1. 32,6 | 105,23    | 6. 11. 27,3     | 1. 58,5 | 108,01    | 10       |
| 21                                                                          | 6. 16. 53,3   | 1. 25,9 | 105,78    | 6. 9. 28,8      | 2. 5,7  | 107,59    | 9        |
| 22                                                                          | 6. 18. 19,2   | 1. 19,4 | 106,31    | 6. 7. 23,1      | 2. 12,8 | 107,09    | 8        |
| 23                                                                          | 6. 19. 38,6   | 1. 12,7 | 106,81    | 6. 5. 10,3      | 2. 20,0 | 106,57    | 7        |
| 24                                                                          | 6. 20. 51,3   | 1. 5,9  | 107,27    | 6. 2. 50,3      | 2. 27,1 | 106,01    | 6        |
| 25                                                                          | 6. 21. 57,2   | 0. 59,2 | 107,71    | 6. 0. 23,2      | 2. 34,3 | 105,42    | 5        |
| 26                                                                          | 6. 22. 56,4   | 0. 52,4 | 108,12    | 5. 57. 48,9     | 2. 41,4 | 104,79    | 4        |
| 27                                                                          | 6. 23. 48,8   | 0. 45,5 | 108,50    | 5. 55. 7,5      | 2. 48,4 | 104,13    | 3        |
| 28                                                                          | 6. 24. 34,3   | 0. 38,7 | 108,84    | 5. 52. 19,1     | 2. 55,4 | 103,43    | 2        |
| 29                                                                          | 6. 25. 13,0   | 0. 31,7 | 109,16    | 5. 49. 23,7     | 3. 2,6  | 102,69    | 1        |
| 30                                                                          | 6. 25. 44,7   |         | 109,44    | 5. 46. 21,1     |         | 101,91    | 0        |
|                                                                             | +<br>Sig. IX. |         | —         | +<br>Sig. VIII. |         | —         |          |



TABLE VII. Equation of Saturn's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. Long. $\hbar$ cor. by Tab. VI.—Aphelion, or mean Anomaly. |                |         |           |               |         |           |          |
|-----------------------------------------------------------------------|----------------|---------|-----------|---------------|---------|-----------|----------|
| Degrees.                                                              | Sig. IV.       |         |           | Sig. V.       |         |           | Degrees. |
|                                                                       | Equation.      | Diff.   | Sec. Var. | Equation.     | Diff.   | Sec. Var. |          |
|                                                                       | —              |         | +         | —             |         | +         |          |
|                                                                       | D. M. S.       | M. S.   | SEC.      | D. M. S.      | M. S.   | SEC.      |          |
| 0                                                                     | 5. 46. 21,1    | 3. 9,4  | 101,91    | 3. 25. 38,8   | 6. 6,7  | 62,28     | 30       |
| 1                                                                     | 5. 43. 11,7    | 3. 16,4 | 101,10    | 3. 19. 32,1   | 6. 11,3 | 60,47     | 29       |
| 2                                                                     | 5. 39. 55,3    | 3. 23,2 | 100,25    | 3. 13. 20,8   | 6. 15,4 | 58,64     | 28       |
| 3                                                                     | 5. 36. 32,1    | 3. 30,1 | 99,36     | 3. 7. 5,4     | 6. 19,6 | 56,78     | 27       |
| 4                                                                     | 5. 33. 2,0     | 3. 36,9 | 98,44     | 3. 0. 45,8    | 6. 23,5 | 54,89     | 26       |
| 5                                                                     | 5. 29. 25,1    | 3. 43,6 | 97,48     | 2. 54. 22,3   | 6. 27,4 | 52,98     | 25       |
| 6                                                                     | 5. 25. 41,5    | 3. 50,3 | 96,48     | 2. 47. 54,9   | 6. 31,1 | 51,05     | 24       |
| 7                                                                     | 5. 21. 51,2    | 3. 56,9 | 95,45     | 2. 41. 23,8   | 6. 34,7 | 49,10     | 23       |
| 8                                                                     | 5. 17. 54,3    | 4. 3,5  | 94,38     | 2. 34. 49,1   | 6. 38,2 | 47,12     | 22       |
| 9                                                                     | 5. 13. 50,8    | 4. 10,2 | 93,27     | 2. 28. 10,9   | 6. 41,5 | 45,12     | 21       |
| 10                                                                    | 5. 9. 40,6     | 4. 16,2 | 92,13     | 2. 21. 29,4   | 6. 44,6 | 43,09     | 20       |
| 11                                                                    | 5. 5. 24,4     | 4. 22,8 | 90,96     | 2. 14. 44,8   | 6. 47,6 | 41,07     | 19       |
| 12                                                                    | 5. 1. 1,6      | 4. 29,1 | 89,74     | 2. 7. 57,2    | 6. 50,5 | 39,02     | 18       |
| 13                                                                    | 4. 56. 32,5    | 4. 35,3 | 88,49     | 2. 1. 6,7     | 6. 53,2 | 36,95     | 17       |
| 14                                                                    | 4. 51. 57,2    | 4. 41,4 | 87,21     | 1. 54. 13,5   | 6. 55,8 | 34,86     | 16       |
| 15                                                                    | 4. 47. 15,8    | 4. 47,5 | 85,90     | 1. 47. 17,7   | 6. 58,2 | 32,76     | 15       |
| 16                                                                    | 4. 42. 28,3    | 4. 53,5 | 84,55     | 1. 40. 19,5   | 7. 0,5  | 30,64     | 14       |
| 17                                                                    | 4. 37. 34,8    | 4. 59,4 | 83,16     | 1. 33. 19,0   | 7. 2,5  | 28,51     | 13       |
| 18                                                                    | 4. 32. 35,4    | 5. 5,2  | 81,74     | 1. 26. 16,5   | 7. 4,5  | 26,37     | 12       |
| 19                                                                    | 4. 27. 30,2    | 5. 10,9 | 80,30     | 1. 19. 12,0   | 7. 6,3  | 24,22     | 11       |
| 20                                                                    | 4. 22. 19,3    | 5. 16,5 | 78,81     | 1. 12. 5,7    | 7. 7,9  | 22,05     | 10       |
| 21                                                                    | 4. 17. 2,8     | 5. 22,0 | 77,29     | 1. 4. 57,8    | 7. 9,4  | 19,87     | 9        |
| 22                                                                    | 4. 11. 40,8    | 5. 27,5 | 75,74     | 0. 57. 48,4   | 7. 10,7 | 17,69     | 8        |
| 23                                                                    | 4. 6. 13,3     | 5. 32,7 | 74,16     | 0. 50. 37,7   | 7. 11,8 | 15,49     | 7        |
| 24                                                                    | 4. 0. 40,6     | 5. 37,9 | 72,56     | 0. 43. 25,9   | 7. 12,8 | 13,29     | 6        |
| 25                                                                    | 3. 55. 2,7     | 5. 43,1 | 70,92     | 0. 36. 13,1   | 7. 13,7 | 11,09     | 5        |
| 26                                                                    | 3. 49. 19,6    | 5. 48,0 | 69,25     | 0. 28. 59,4   | 7. 14,2 | 8,87      | 4        |
| 27                                                                    | 3. 43. 31,6    | 5. 52,9 | 67,55     | 0. 21. 45,2   | 7. 14,8 | 6,66      | 3        |
| 28                                                                    | 3. 37. 38,7    | 5. 57,6 | 65,82     | 0. 14. 30,4   | 7. 15,1 | 4,43      | 2        |
| 29                                                                    | 3. 31. 41,1    | 6. 2,3  | 64,06     | 0. 7. 15,3    | 7. 15,3 | 2,22      | 1        |
| 30                                                                    | 3. 25. 38,8    |         | 62,28     | 0. 0. 00,0    |         | 0,00      | 0        |
|                                                                       | +<br>Sig. VII. |         | —         | +<br>Sig. VI. |         | —         |          |



Equation of Saturn, always additive.

TABLE VIII. EQUATION II.

ARGUMENT II.

| ARG.<br>II. | Equation II. |      | Diff. | ARG.<br>II. | Equation II. |      | Diff. | ARG.<br>II. | Equation II. |      | Diff. |
|-------------|--------------|------|-------|-------------|--------------|------|-------|-------------|--------------|------|-------|
|             | M.           | S.   |       |             | M.           | S.   |       |             | M.           | S.   |       |
| 0           | I.           | 3,8  | 4,7   | 3400        | I.           | 8,6  | 1,0   | 6700        | O.           | 3,0  | 1,9   |
| 100         | O.           | 59,1 | 4,8   | 3500        | I.           | 7,6  | 1,3   | 6800        | O.           | 4,9  | 2,5   |
| 200         | O.           | 54,3 | 4,6   | 3600        | I.           | 6,3  | 1,7   | 6900        | O.           | 7,4  | 2,9   |
| 300         | O.           | 49,7 | 4,4   | 3700        | I.           | 4,6  | 2,1   | 7000        | O.           | 10,3 | 3,4   |
| 400         | O.           | 45,3 | 4,1   | 3800        | I.           | 2,5  | 2,3   | 7100        | O.           | 13,7 | 3,9   |
| 500         | O.           | 41,2 | 3,6   | 3900        | I.           | 0,2  | 2,5   | 7200        | O.           | 17,6 | 4,3   |
| 600         | O.           | 37,6 | 3,2   | 4000        | O.           | 57,7 | 2,8   | 7300        | O.           | 21,9 | 4,6   |
| 700         | O.           | 34,4 | 2,7   | 4100        | O.           | 54,9 | 2,9   | 7400        | O.           | 26,5 | 5,0   |
| 800         | O.           | 31,7 | 2,1   | 4200        | O.           | 52,0 | 3,0   | 7500        | O.           | 31,5 | 5,3   |
| 900         | O.           | 29,6 | 1,5   | 4300        | O.           | 49,0 | 3,2   | 7600        | O.           | 36,8 | 5,4   |
| 1000        | O.           | 28,1 | 0,8   | 4400        | O.           | 45,8 | 3,2   | 7700        | O.           | 42,2 | 5,6   |
| 1100        | O.           | 27,3 | 0,3   | 4500        | O.           | 42,6 | 3,3   | 7800        | O.           | 47,8 | 5,6   |
| 1200        | O.           | 27,0 | 0,4   | 4600        | O.           | 39,3 | 3,3   | 7900        | O.           | 53,4 | 5,5   |
| 1300        | O.           | 27,4 | 0,9   | 4700        | O.           | 36,0 | 3,2   | 8000        | O.           | 58,9 | 5,4   |
| 1400        | O.           | 28,3 | 1,5   | 4800        | O.           | 32,8 | 3,3   | 8100        | I.           | 4,3  | 5,1   |
| 1500        | O.           | 29,8 | 1,9   | 4900        | O.           | 29,5 | 3,1   | 8200        | I.           | 9,4  | 4,8   |
| 1600        | O.           | 31,7 | 2,3   | 5000        | O.           | 26,4 | 3,2   | 8300        | I.           | 14,2 | 4,4   |
| 1700        | O.           | 34,0 | 2,7   | 5100        | O.           | 23,2 | 3,0   | 8400        | I.           | 18,6 | 3,9   |
| 1800        | O.           | 36,7 | 3,0   | 5200        | O.           | 20,2 | 2,9   | 8500        | I.           | 22,5 | 3,3   |
| 1900        | O.           | 39,7 | 3,2   | 5300        | O.           | 17,3 | 2,8   | 8600        | I.           | 25,8 | 2,7   |
| 2000        | O.           | 42,9 | 3,2   | 5400        | O.           | 14,5 | 2,6   | 8700        | I.           | 28,5 | 2,0   |
| 2100        | O.           | 46,1 | 3,3   | 5500        | O.           | 11,9 | 2,4   | 8800        | I.           | 30,5 | 1,3   |
| 2200        | O.           | 49,4 | 3,2   | 5600        | O.           | 9,5  | 2,2   | 8900        | I.           | 31,8 | 0,6   |
| 2300        | O.           | 52,6 | 3,1   | 5700        | O.           | 7,3  | 2,0   | 9000        | I.           | 32,4 | 0,2   |
| 2400        | O.           | 55,7 | 2,9   | 5800        | O.           | 5,3  | 1,7   | 9100        | I.           | 32,2 | 0,9   |
| 2500        | O.           | 58,6 | 2,7   | 5900        | O.           | 3,6  | 1,4   | 9200        | I.           | 31,3 | 1,5   |
| 2600        | I.           | 1,3  | 2,3   | 6000        | O.           | 2,2  | 1,1   | 9300        | I.           | 29,8 | 2,3   |
| 2700        | I.           | 3,6  | 2,0   | 6100        | O.           | 1,1  | 0,7   | 9400        | I.           | 27,5 | 2,9   |
| 2800        | I.           | 5,6  | 1,6   | 6200        | O.           | 0,4  | 0,4   | 9500        | I.           | 24,6 | 3,4   |
| 2900        | I.           | 7,2  | 1,1   | 6300        | O.           | 0,0  | 0,0   | 9600        | I.           | 21,2 | 3,9   |
| 3000        | I.           | 8,3  | 0,7   | 6400        | O.           | 0,0  | 0,5   | 9700        | I.           | 17,3 | 4,2   |
| 3100        | I.           | 9,0  | 0,3   | 6500        | O.           | 0,5  | 1,0   | 9800        | I.           | 13,1 | 4,5   |
| 3200        | I.           | 9,3  | 0,2   | 6600        | O.           | 1,5  | 1,5   | 9900        | I.           | 8,6  | 4,8   |
| 3300        | I.           | 9,1  | 0,5   | 6700        | O.           | 3,0  |       | 10000       | I.           | 3,8  |       |
| 3400        | I.           | 8,6  |       |             |              |      |       |             |              |      |       |



## TABLES OF SATURN.

Equation of Saturn, always additive.

TABLE IX. EQUATION III.

## ARGUMENT III.

| ARG.<br>III. | Equation<br>III. | Diff. | ARG.<br>III. | Equation<br>III. | Diff. | ARG.<br>III. | Equation<br>III. | Diff. |
|--------------|------------------|-------|--------------|------------------|-------|--------------|------------------|-------|
|              | M. S.            |       |              | M. S.            |       |              | M. S.            |       |
| 0            | 8. 47,8          |       | 3400         | 0. 19,1          | 8,7   | 6700         | 12. 1,8          |       |
| 100          | 8. 22,2          | 25,6  | 3500         | 0. 27,8          | 10,2  | 6800         | 12. 19,4         | 17,6  |
| 200          | 7. 56,2          | 26,0  | 3600         | 0. 38,0          | 11,7  | 6900         | 12. 35,8         | 16,4  |
|              |                  | 26,2  |              |                  |       |              |                  | 15,0  |
| 300          | 7. 30,0          | 26,3  | 3700         | 0. 49,7          | 13,2  | 7000         | 12. 50,8         | 13,7  |
| 400          | 7. 3,7           | 26,3  | 3800         | 1. 2,9           | 14,5  | 7100         | 13. 4,5          | 12,2  |
| 500          | 6. 37,4          | 26,2  | 3900         | 1. 17,4          | 15,9  | 7200         | 13. 16,7         | 10,7  |
|              |                  | 26,1  |              |                  |       |              |                  |       |
| 600          | 6. 11,2          | 26,1  | 4000         | 1. 33,3          | 17,2  | 7300         | 13. 27,4         | 9,2   |
| 700          | 5. 45,1          | 25,8  | 4100         | 1. 50,5          | 18,4  | 7400         | 13. 36,6         | 7,6   |
| 800          | 5. 19,3          | 25,4  | 4200         | 2. 8,9           | 19,6  | 7500         | 13. 44,2         | 6,0   |
|              |                  | 24,9  |              |                  |       |              |                  |       |
| 900          | 4. 53,9          | 24,2  | 4300         | 2. 28,5          | 20,6  | 7600         | 13. 50,2         | 4,4   |
| 1000         | 4. 29,0          | 23,7  | 4400         | 2. 49,1          | 21,6  | 7700         | 13. 54,6         | 2,8   |
| 1100         | 4. 4,8           | 22,8  | 4500         | 3. 10,7          | 22,5  | 7800         | 13. 57,4         | 1,0   |
|              |                  | 21,9  |              |                  |       |              |                  |       |
| 1200         | 3. 41,1          | 21,0  | 4600         | 3. 33,2          | 23,4  | 7900         | 13. 58,4         | 0,5   |
| 1300         | 3. 18,3          | 19,9  | 4700         | 3. 56,6          | 24,1  | 8000         | 13. 57,9         | 2,2   |
| 1400         | 2. 56,4          | 18,9  | 4800         | 4. 20,7          | 24,7  | 8100         | 13. 55,7         | 3,8   |
|              |                  | 17,6  |              |                  |       |              |                  |       |
| 1500         | 2. 35,4          | 16,4  | 4900         | 4. 45,4          | 25,2  | 8200         | 13. 51,9         | 5,6   |
| 1600         | 2. 15,5          | 15,0  | 5000         | 5. 10,6          | 25,6  | 8300         | 13. 46,3         | 7,0   |
| 1700         | 1. 56,6          | 13,7  | 5100         | 5. 36,2          | 26,0  | 8400         | 13. 39,3         | 8,7   |
|              |                  | 12,2  |              |                  |       |              |                  |       |
| 1800         | 1. 39,0          | 10,7  | 5200         | 6. 2,2           | 26,2  | 8500         | 13. 30,6         | 10,2  |
| 1900         | 1. 22,6          | 9,2   | 5300         | 6. 28,4          | 26,3  | 8600         | 13. 20,4         | 11,7  |
| 2000         | 1. 7,6           | 7,6   | 5400         | 6. 54,7          | 26,3  | 8700         | 13. 8,7          | 13,2  |
|              |                  | 6,0   |              |                  |       |              |                  |       |
| 2100         | 0. 53,9          | 4,4   | 5500         | 7. 21,0          | 26,3  | 8800         | 12. 55,5         | 14,5  |
| 2200         | 0. 41,7          | 2,8   | 5600         | 7. 47,3          | 26,0  | 8900         | 12. 41,0         | 15,9  |
| 2300         | 0. 31,0          | 2,2   | 5700         | 8. 13,3          | 25,8  | 9000         | 12. 25,1         | 17,2  |
|              |                  | 1,0   |              |                  |       |              |                  |       |
| 2400         | 0. 21,8          | 0,6   | 5800         | 8. 39,1          | 25,4  | 9100         | 12. 7,9          | 18,4  |
| 2500         | 0. 14,2          | 0,6   | 5900         | 9. 4,5           | 24,9  | 9200         | 11. 49,5         | 19,0  |
| 2600         | 0. 8,2           | 4,4   | 6000         | 9. 29,4          | 24,2  | 9300         | 11. 23,9         | 20,6  |
|              |                  | 2,8   |              |                  |       |              |                  |       |
| 2700         | 0. 3,8           | 1,0   | 6100         | 9. 53,6          | 23,7  | 9400         | 11. 9,3          | 21,6  |
| 2800         | 0. 1,0           | 0,6   | 6200         | 10. 17,3         | 22,8  | 9500         | 10. 47,7         | 22,5  |
| 2900         | 0. 0,0           | 2,2   | 6300         | 10. 40,1         | 21,9  | 9600         | 10. 25,2         | 23,4  |
| 3000         | 0. 0,6           | 3,8   | 6400         | 11. 2,0          | 21,0  | 9700         | 10. 1,8          | 24,1  |
|              |                  | 3,8   |              |                  |       |              |                  |       |
| 3100         | 0. 2,8           | 5,5   | 6500         | 11. 23,0         | 19,9  | 9800         | 9. 37,7          | 24,6  |
| 3200         | 0. 6,6           | 7,0   | 6600         | 11. 42,9         | 18,9  | 9900         | 9. 13,1          | 25,3  |
| 3300         | 0. 12,1          |       | 6700         | 12. 1,8          |       | 10000        | 8. 47,8          |       |
| 3400         | 0. 19,1          |       |              |                  |       |              |                  |       |



Equations of Saturn, always additive.

TABLE X. EQUATION IV.

ARGUMENT IV.

| ARG.<br>IV. | Equation<br>IV.<br>M. S. | Diff.<br>SEC. | ARG.<br>IV. | Equation<br>IV.<br>M. S. | Diff.<br>SEC. | ARG.<br>IV. | Equation<br>IV.<br>M. S. | Diff.<br>SEC. |
|-------------|--------------------------|---------------|-------------|--------------------------|---------------|-------------|--------------------------|---------------|
| 0           | 1. 51,7                  | 21,9          | 3400        | 10. 30,9                 | 40,9          | 6700        | 20. 30,2                 | 19,8          |
| 100         | 1. 29,8                  | 19,6          | 3500        | 11. 11,8                 | 40,8          | 6800        | 20. 10,4                 | 22,2          |
| 200         | 1. 10,2                  | 17,4          | 3600        | 11. 52,6                 | 40,6          | 6900        | 19. 48,2                 | 23,8          |
| 300         | 0. 52,8                  | 14,6          | 3700        | 12. 33,2                 | 40,2          | 7000        | 19. 24,4                 | 26,1          |
| 400         | 0. 38,2                  | 13,0          | 3800        | 13. 13,4                 | 39,6          | 7100        | 18. 58,3                 | 27,9          |
| 500         | 0. 25,2                  | 10,1          | 3900        | 13. 53,0                 | 38,9          | 7200        | 18. 30,4                 | 29,9          |
| 600         | 0. 15,1                  | 7,6           | 4000        | 14. 31,9                 | 37,9          | 7300        | 18. 0,5                  | 31,5          |
| 700         | 0. 7,5                   | 5,0           | 4100        | 15. 9,8                  | 36,9          | 7400        | 17. 29,0                 | 33,2          |
| 800         | 0. 2,5                   | 2,5           | 4200        | 15. 46,7                 | 35,9          | 7500        | 16. 55,8                 | 34,5          |
| 900         | 0. 0,0                   | 0,0           | 4300        | 16. 22,6                 | 34,6          | 7600        | 16. 21,3                 | 35,8          |
| 1000        | 0. 0,0                   | 2,7           | 4400        | 16. 57,2                 | 33,0          | 7700        | 15. 45,5                 | 37,0          |
| 1100        | 0. 2,7                   | 5,1           | 4500        | 17. 30,2                 | 31,5          | 7800        | 15. 8,5                  | 38,2          |
| 1200        | 0. 7,8                   | 7,7           | 4600        | 18. 1,7                  | 29,8          | 7900        | 14. 30,3                 | 38,9          |
| 1300        | 0. 15,5                  | 10,2          | 4700        | 18. 31,5                 | 27,8          | 8000        | 13. 51,4                 | 39,7          |
| 1400        | 0. 25,7                  | 12,8          | 4800        | 18. 59,3                 | 26,2          | 8100        | 13. 11,7                 | 40,1          |
| 1500        | 0. 38,5                  | 15,1          | 4900        | 19. 25,5                 | 24,0          | 8200        | 12. 31,6                 | 40,6          |
| 1600        | 0. 53,6                  | 17,4          | 5000        | 19. 49,5                 | 21,9          | 8300        | 11. 51,0                 | 40,7          |
| 1700        | 1. 11,0                  | 19,8          | 5100        | 20. 11,4                 | 19,6          | 8400        | 11. 10,3                 | 40,9          |
| 1800        | 1. 30,8                  | 22,2          | 5200        | 20. 31,0                 | 17,4          | 8500        | 10. 29,4                 | 40,8          |
| 1900        | 1. 53,0                  | 23,8          | 5300        | 20. 48,4                 | 14,6          | 8600        | 9. 48,6                  | 40,6          |
| 2000        | 2. 16,8                  | 26,1          | 5400        | 21. 3,0                  | 13,0          | 8700        | 9. 8,0                   | 40,2          |
| 2100        | 2. 42,9                  | 27,9          | 5500        | 21. 16,0                 | 10,1          | 8800        | 8. 27,8                  | 39,6          |
| 2200        | 3. 10,8                  | 29,9          | 5600        | 21. 26,1                 | 7,6           | 8900        | 7. 48,2                  | 38,9          |
| 2300        | 3. 40,7                  | 31,5          | 5700        | 21. 33,7                 | 5,0           | 9000        | 7. 9,3                   | 37,9          |
| 2400        | 4. 12,2                  | 33,2          | 5800        | 21. 38,7                 | 2,5           | 9100        | 6. 31,4                  | 36,9          |
| 2500        | 4. 45,4                  | 34,5          | 5900        | 21. 41,2                 | 0,0           | 9200        | 5. 54,5                  | 35,9          |
| 2600        | 5. 19,9                  | 35,8          | 6000        | 21. 41,2                 | 2,7           | 9300        | 5. 18,6                  | 34,6          |
| 2700        | 5. 55,7                  | 37,0          | 6100        | 21. 38,5                 | 5,1           | 9400        | 4. 44,0                  | 33,0          |
| 2800        | 6. 32,7                  | 38,2          | 6200        | 21. 33,4                 | 7,7           | 9500        | 4. 11,0                  | 31,5          |
| 2900        | 7. 10,9                  | 38,9          | 6300        | 21. 25,7                 | 10,2          | 9600        | 3. 39,5                  | 29,8          |
| 3000        | 7. 49,8                  | 39,7          | 6400        | 21. 15,5                 | 12,8          | 9700        | 3. 9,7                   | 27,8          |
| 3100        | 8. 29,5                  | 40,1          | 6500        | 21. 2,7                  | 15,1          | 9800        | 2. 41,9                  | 26,2          |
| 3200        | 9. 9,6                   | 40,6          | 6600        | 20. 47,6                 | 17,4          | 9900        | 2. 15,7                  | 24,0          |
| 3300        | 9. 50,2                  | 40,7          | 6700        | 20. 30,2                 |               | 10000       | 1. 51,7                  |               |
| 3400        | 10. 30,9                 |               |             |                          |               |             |                          |               |



## TABLES OF SATURN.

Equation of Saturn, always additive.

TABLE XI. EQUATION V.

| ARGUMENT V. |                |       |            |                |       |            |                |       |
|-------------|----------------|-------|------------|----------------|-------|------------|----------------|-------|
| ARG.<br>V.  | Equation<br>V. | Diff. | ARG.<br>V. | Equation<br>V. | Diff. | ARG.<br>V. | Equation<br>V. | Diff. |
|             | M. S.          | SEC.  |            | M. S.          | SEC.  |            | M. S.          | SEC.  |
| 0           | 0. 0,0         | 0,0   | 340        | 1. 14,9        | 2,7   | 670        | 1. 14,8        | 2,7   |
| 10          | 0. 0,0         | 0,2   | 350        | 1. 17,6        | 2,5   | 680        | 1. 12,1        | 2,9   |
| 20          | 0. 0,2         | 0,5   | 360        | 1. 20,1        | 2,4   | 690        | 1. 9,2         | 2,9   |
| 30          | 0. 0,7         | 0,6   | 370        | 1. 22,5        | 2,3   | 700        | 1. 6,3         | 3,0   |
| 40          | 0. 1,3         | 0,7   | 380        | 1. 24,8        | 2,1   | 710        | 1. 3,3         | 3,0   |
| 50          | 0. 2,0         | 1,0   | 390        | 1. 26,9        | 2,0   | 720        | 1. 0,3         | 3,1   |
| 60          | 0. 3,0         | 1,2   | 400        | 1. 28,9        | 1,8   | 730        | 0. 57,2        | 3,1   |
| 70          | 0. 4,2         | 1,3   | 410        | 1. 30,7        | 1,7   | 740        | 0. 54,1        | 3,1   |
| 80          | 0. 5,5         | 1,5   | 420        | 1. 32,4        | 1,5   | 750        | 0. 51,0        | 3,1   |
| 90          | 0. 7,0         | 1,7   | 430        | 1. 33,9        | 1,3   | 760        | 0. 47,9        | 3,1   |
| 100         | 0. 8,7         | 1,8   | 440        | 1. 35,2        | 1,1   | 770        | 0. 44,8        | 3,1   |
| 110         | 0. 10,5        | 1,9   | 450        | 1. 36,3        | 1,0   | 780        | 0. 41,7        | 3,1   |
| 120         | 0. 12,4        | 2,2   | 460        | 1. 37,3        | 0,8   | 790        | 0. 38,6        | 3,0   |
| 130         | 0. 14,6        | 2,2   | 470        | 1. 38,1        | 0,5   | 800        | 0. 35,6        | 2,9   |
| 140         | 0. 16,8        | 2,4   | 480        | 1. 38,6        | 0,3   | 810        | 0. 32,7        | 2,9   |
| 150         | 0. 19,2        | 2,5   | 490        | 1. 38,9        | 0,3   | 820        | 0. 29,8        | 2,8   |
| 160         | 0. 21,7        | 2,7   | 500        | 1. 39,2        | 0,0   | 830        | 0. 27,0        | 2,7   |
| 170         | 0. 24,4        | 2,7   | 510        | 1. 39,2        | 0,2   | 840        | 0. 24,3        | 2,7   |
| 180         | 0. 27,1        | 2,9   | 520        | 1. 39,0        | 0,5   | 850        | 0. 21,6        | 2,5   |
| 190         | 0. 30,0        | 2,9   | 530        | 1. 38,5        | 0,6   | 860        | 0. 19,1        | 2,4   |
| 200         | 0. 32,9        | 3,0   | 540        | 1. 37,9        | 0,7   | 870        | 0. 16,7        | 2,3   |
| 210         | 0. 35,9        | 3,0   | 550        | 1. 37,2        | 1,0   | 880        | 0. 14,4        | 2,1   |
| 220         | 0. 38,9        | 3,1   | 560        | 1. 36,2        | 1,2   | 890        | 0. 12,3        | 2,0   |
| 230         | 0. 42,0        | 3,1   | 570        | 1. 35,0        | 1,3   | 900        | 0. 10,3        | 1,8   |
| 240         | 0. 45,1        | 3,1   | 580        | 1. 33,7        | 1,5   | 910        | 0. 8,5         | 1,7   |
| 250         | 0. 48,2        | 3,1   | 590        | 1. 32,2        | 1,7   | 920        | 0. 6,8         | 1,5   |
| 260         | 0. 51,3        | 3,1   | 600        | 1. 30,5        | 1,8   | 930        | 0. 5,3         | 1,3   |
| 270         | 0. 54,4        | 3,1   | 610        | 1. 28,7        | 1,9   | 940        | 0. 4,0         | 1,1   |
| 280         | 0. 57,5        | 3,1   | 620        | 1. 26,8        | 2,2   | 950        | 0. 2,9         | 1,0   |
| 290         | 1. 0,6         | 3,0   | 630        | 1. 24,6        | 2,2   | 960        | 0. 1,9         | 0,8   |
| 300         | 1. 3,6         | 2,9   | 640        | 1. 22,4        | 2,4   | 970        | 0. 1,1         | 0,5   |
| 310         | 1. 6,5         | 2,9   | 650        | 1. 20,0        | 2,5   | 980        | 0. 0,6         | 0,3   |
| 320         | 1. 9,4         | 2,8   | 660        | 1. 17,5        | 2,7   | 990        | 0. 0,3         | 0,3   |
| 330         | 1. 12,2        | 2,7   | 670        | 1. 14,8        |       | 1000       | 0. 0,0         |       |
| 340         | 1. 14,9        |       |            |                |       |            |                |       |



Equation of Saturn, always additive.

TABLE XII. EQUATION VI.

ARGUMENT VI.

| ARG. VI. | Equat. VI. SEC. | ARG. VI. | Equat. VI. SEC. | ARG. VI. | Equat. VI. SEC. |
|----------|-----------------|----------|-----------------|----------|-----------------|
| 0        | 13,7            | 340      | 9,0             | 670      | 43,5            |
| 10       | 13,5            | 350      | 10,2            | 680      | 43,6            |
| 20       | 11,2            | 360      | 11,4            | 690      | 43,6            |
| 30       | 10,1            | 370      | 12,6            | 700      | 43,6            |
| 40       | 9,0             | 380      | 13,8            | 710      | 43,4            |
| 50       | 7,9             | 390      | 15,1            | 720      | 43,2            |
| 60       | 6,8             | 400      | 16,4            | 730      | 42,9            |
| 70       | 5,8             | 410      | 17,7            | 740      | 42,5            |
| 80       | 4,9             | 420      | 19,1            | 750      | 42,0            |
| 90       | 4,1             | 430      | 20,5            | 760      | 41,5            |
| 100      | 3,3             | 440      | 21,8            | 770      | 40,9            |
| 110      | 2,6             | 450      | 23,2            | 780      | 40,1            |
| 120      | 2,0             | 460      | 24,6            | 790      | 39,3            |
| 130      | 1,4             | 470      | 25,9            | 800      | 38,5            |
| 140      | 1,0             | 480      | 27,2            | 810      | 37,6            |
| 150      | 0,6             | 490      | 28,6            | 820      | 36,7            |
| 160      | 0,3             | 500      | 29,9            | 830      | 35,7            |
| 170      | 0,1             | 510      | 31,1            | 840      | 34,6            |
| 180      | 0,0             | 520      | 32,4            | 850      | 33,4            |
| 190      | 0,0             | 530      | 33,5            | 860      | 32,2            |
| 200      | 0,0             | 540      | 34,6            | 870      | 31,0            |
| 210      | 0,2             | 550      | 35,7            | 880      | 29,8            |
| 220      | 0,4             | 560      | 36,8            | 890      | 28,5            |
| 230      | 0,7             | 570      | 37,8            | 900      | 27,2            |
| 240      | 1,1             | 580      | 38,7            | 910      | 25,9            |
| 250      | 1,6             | 590      | 39,5            | 920      | 24,5            |
| 260      | 2,1             | 600      | 40,3            | 930      | 23,1            |
| 270      | 2,7             | 610      | 41,0            | 940      | 21,8            |
| 280      | 3,5             | 620      | 41,6            | 950      | 20,4            |
| 290      | 4,3             | 630      | 42,2            | 960      | 19,0            |
| 300      | 5,1             | 640      | 42,6            | 970      | 17,7            |
| 310      | 6,0             | 650      | 43,0            | 980      | 16,4            |
| 320      | 6,9             | 660      | 43,3            | 990      | 15,0            |
| 339      | 7,9             | 670      | 43,5            | 1000     | 13,7            |
| 340      | 9,0             |          |                 |          |                 |

TABLE XIII. EQUATION VII.

ARGUMENT VII.

| ARG. VII. | Equat. VII. SEC. | ARG. VII. | Equat. VII. SEC. | ARG. VII. | Equat. VII. SEC. |
|-----------|------------------|-----------|------------------|-----------|------------------|
| 0         | 22,0             | 340       | 5,1              | 670       | 5,7              |
| 10        | 22,0             | 350       | 4,6              | 680       | 6,4              |
| 20        | 21,9             | 360       | 4,0              | 690       | 7,0              |
| 30        | 21,8             | 370       | 3,5              | 700       | 7,6              |
| 40        | 21,7             | 380       | 3,0              | 710       | 8,3              |
| 50        | 21,5             | 390       | 2,5              | 720       | 9,0              |
| 60        | 21,2             | 400       | 2,1              | 730       | 9,7              |
| 70        | 21,0             | 410       | 1,7              | 740       | 10,3             |
| 80        | 20,7             | 420       | 1,3              | 750       | 11,0             |
| 90        | 20,3             | 430       | 1,0              | 760       | 11,7             |
| 100       | 19,9             | 440       | 0,8              | 770       | 12,3             |
| 110       | 19,5             | 450       | 0,5              | 780       | 13,0             |
| 120       | 19,0             | 460       | 0,3              | 790       | 13,7             |
| 130       | 18,5             | 470       | 0,2              | 800       | 14,4             |
| 140       | 18,0             | 480       | 0,1              | 810       | 15,0             |
| 150       | 17,4             | 490       | 0,0              | 820       | 15,6             |
| 160       | 16,9             | 500       | 0,0              | 830       | 16,3             |
| 170       | 16,3             | 510       | 0,0              | 840       | 16,9             |
| 180       | 15,6             | 520       | 0,1              | 850       | 17,4             |
| 190       | 15,0             | 530       | 0,2              | 860       | 18,0             |
| 200       | 14,4             | 540       | 0,3              | 870       | 18,5             |
| 210       | 13,7             | 550       | 0,5              | 880       | 19,0             |
| 220       | 13,0             | 560       | 0,8              | 890       | 19,5             |
| 230       | 12,3             | 570       | 1,0              | 900       | 19,9             |
| 240       | 11,7             | 580       | 1,3              | 910       | 20,3             |
| 250       | 11,0             | 590       | 1,7              | 920       | 20,7             |
| 260       | 10,3             | 600       | 2,1              | 930       | 21,0             |
| 270       | 9,7              | 610       | 2,5              | 940       | 21,2             |
| 280       | 9,0              | 620       | 3,0              | 950       | 21,5             |
| 290       | 8,3              | 630       | 3,5              | 960       | 21,7             |
| 300       | 7,6              | 640       | 4,0              | 970       | 21,8             |
| 310       | 7,0              | 650       | 4,6              | 980       | 21,9             |
| 320       | 6,4              | 660       | 5,1              | 990       | 22,0             |
| 330       | 5,7              | 670       | 5,7              | 1000      | 22,0             |
| 340       | 5,1              |           |                  |           |                  |



TABLE XIV. Radius Vector of Saturn's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. <i>The mean Anomaly.</i> |            |       |                    |            |       |                    |            |       |                    |          |
|--------------------------------------|------------|-------|--------------------|------------|-------|--------------------|------------|-------|--------------------|----------|
| Degrees.                             | Sig. O.    |       |                    | Sig. I.    |       |                    | Sig. II.   |       |                    | Degrees. |
|                                      | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. |          |
|                                      |            |       | —<br>0,00          |            |       | —<br>0,00          |            |       | —<br>0,00          |          |
| 0                                    | 10,05389   | 7     | 253,5              | 9,98904    | 431   | 226,8              | 9,80735    | 769   | 148,2              | 30       |
| 1                                    | 10,05382   | 22    | 253,5              | 9,98473    | 445   | 224,9              | 9,79966    | 777   | 144,8              | 29       |
| 2                                    | 10,05360   |       | 253,4              | 9,98028    |       | 223,0              | 9,79189    |       | 141,3              | 28       |
|                                      |            | 37    |                    |            | 458   |                    |            | 786   |                    |          |
| 3                                    | 10,05323   | 51    | 253,3              | 9,97570    | 471   | 221,1              | 9,78403    | 795   | 137,8              | 27       |
| 4                                    | 10,05272   | 66    | 253,0              | 9,97099    | 484   | 219,0              | 9,77608    | 803   | 134,2              | 26       |
| 5                                    | 10,05206   |       | 252,7              | 9,96615    |       | 217,1              | 9,76805    |       | 130,6              | 25       |
|                                      |            | 80    |                    |            | 496   |                    |            | 810   |                    |          |
| 6                                    | 10,05126   | 95    | 252,4              | 9,96119    | 509   | 215,0              | 9,75995    | 818   | 127,0              | 24       |
| 7                                    | 10,05031   | 110   | 252,0              | 9,95610    | 521   | 212,9              | 9,75177    | 826   | 123,3              | 23       |
| 8                                    | 10,04921   |       | 251,5              | 9,95089    |       | 210,6              | 9,74351    |       | 119,5              | 22       |
|                                      |            | 124   |                    |            | 534   |                    |            | 833   |                    |          |
| 9                                    | 10,04797   | 139   | 251,0              | 9,94555    | 547   | 208,3              | 9,73518    | 840   | 115,8              | 21       |
| 10                                   | 10,04658   | 153   | 250,5              | 9,94008    | 558   | 206,0              | 9,72678    | 847   | 112,0              | 20       |
| 11                                   | 10,04505   |       | 249,8              | 9,93450    |       | 203,6              | 9,71831    |       | 108,1              | 19       |
|                                      |            | 168   |                    |            | 570   |                    |            | 853   |                    |          |
| 12                                   | 10,04337   | 182   | 249,1              | 9,92880    | 582   | 201,2              | 9,70978    | 860   | 104,2              | 18       |
| 13                                   | 10,04155   | 196   | 248,4              | 9,92298    | 594   | 198,7              | 9,70118    | 866   | 100,3              | 17       |
| 14                                   | 10,03959   |       | 247,5              | 9,91704    |       | 196,1              | 9,69252    |       | 096,3              | 16       |
|                                      |            | 211   |                    |            | 605   |                    |            | 872   |                    |          |
| 15                                   | 10,03748   | 225   | 246,8              | 9,91099    | 617   | 193,5              | 9,68380    | 878   | 092,2              | 15       |
| 16                                   | 10,03523   | 240   | 245,9              | 9,90482    | 628   | 190,9              | 9,67502    | 883   | 088,2              | 14       |
| 17                                   | 10,03283   |       | 244,8              | 9,89854    |       | 188,2              | 9,66619    |       | 084,2              | 13       |
|                                      |            | 253   |                    |            | 639   |                    |            | 888   |                    |          |
| 18                                   | 10,03030   | 268   | 243,8              | 9,89215    | 650   | 185,4              | 9,65731    | 892   | 080,1              | 12       |
| 19                                   | 10,02762   | 281   | 242,7              | 9,88565    | 661   | 182,6              | 9,64839    | 899   | 076,0              | 11       |
| 20                                   | 10,02481   |       | 241,5              | 9,87904    |       | 179,8              | 9,63940    |       | 071,8              | 10       |
|                                      |            | 296   |                    |            | 672   |                    |            | 904   |                    |          |
| 21                                   | 10,02185   | 310   | 240,4              | 9,87232    | 683   | 176,8              | 9,63036    | 906   | 067,6              | 9        |
| 22                                   | 10,01875   | 323   | 239,0              | 9,86549    | 692   | 173,9              | 9,62130    | 910   | 063,4              | 8        |
| 23                                   | 10,01552   |       | 237,6              | 9,85857    |       | 170,8              | 9,61220    |       | 059,1              | 7        |
|                                      |            | 337   |                    |            | 702   |                    |            | 914   |                    |          |
| 24                                   | 10,01215   | 352   | 236,3              | 9,85155    | 713   | 167,7              | 9,60306    | 918   | 054,8              | 6        |
| 25                                   | 10,00863   | 365   | 234,9              | 9,84442    | 722   | 164,6              | 9,59388    | 920   | 050,5              | 5        |
| 26                                   | 10,00498   |       | 233,4              | 9,83720    |       | 161,5              | 9,58468    |       | 046,2              | 4        |
|                                      |            | 378   |                    |            | 732   |                    |            | 924   |                    |          |
| 27                                   | 10,00120   | 393   | 231,8              | 9,82988    | 742   | 158,2              | 9,57544    | 926   | 041,8              | 3        |
| 28                                   | 9,99727    | 405   | 230,1              | 9,82246    | 751   | 154,9              | 9,56618    | 929   | 037,4              | 2        |
| 29                                   | 9,99322    | 418   | 228,4              | 9,81495    | 760   | 151,6              | 9,55689    | 931   | 033,0              | 1        |
| 30                                   | 9,98904    |       | 226,8              | 9,80735    |       | 148,2              | 9,54758    |       | 028,6              | 0        |
|                                      | Sig. XI.   |       | —                  | Sig. X.    |       | —                  | Sig. IX.   |       | —                  |          |



TABLE XV. Radius Vector of Jupiter's Orbit for 1750, with the Secular Variation.

| ARGUMENT I. <i>The mean Anomaly.</i> |            |       |                    |            |       |                    |            |       |                    |          |
|--------------------------------------|------------|-------|--------------------|------------|-------|--------------------|------------|-------|--------------------|----------|
| Degrees.                             | Sig. III.  |       |                    | Sig. IV.   |       |                    | Sig. V.    |       |                    | Degrees. |
|                                      | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. |          |
|                                      |            |       | —<br>0,00          |            |       | +<br>0,00          |            |       | +<br>0,00          |          |
| 0                                    | 9,54758    |       | 028,6              | 9,27222    |       | 105,2              | 9,06107    |       | 212,4              | 30       |
| 1                                    | 9,53822    | 936   | 024,2              | 9,26371    | 851   | 109,6              | 9,05602    | 505   | 215,0              | 29       |
| 2                                    | 9,52884    | 938   | 019,8              | 9,25527    | 844   | 113,7              | 9,05112    | 490   | 217,5              | 28       |
|                                      |            | 938   |                    |            | 836   |                    |            | 476   |                    |          |
| 3                                    | 9,51946    |       | 015,2              | 9,24691    |       | 118,0              | 9,04636    |       | 220,0              | 27       |
| 4                                    | 9,51006    | 940   | 010,8              | 9,23863    | 828   | 122,1              | 9,04176    | 460   | 222,2              | 26       |
| 5                                    | 9,50066    | 940   | 006,3              | 9,23043    | 820   | 126,2              | 9,03733    | 443   | 224,7              | 25       |
|                                      |            | 941   |                    |            | 811   |                    |            | 428   |                    |          |
| 6                                    | 9,49125    |       | 001,8              | 9,22232    |       | 130,3              | 9,03305    |       | 226,9              | 24       |
| 7                                    | 9,48184    | 941   | 002,7              | 9,21431    | 801   | 134,4              | 9,02894    | 411   | 229,0              | 23       |
| 8                                    | 9,47244    | 940   | 007,2              | 9,20638    | 793   | 138,3              | 9,02499    | 395   | 231,0              | 22       |
|                                      |            | 940   |                    |            | 783   |                    |            | 378   |                    |          |
| 9                                    | 9,46304    |       | 011,8              | 9,19855    |       | 142,2              | 9,02121    |       | 233,0              | 21       |
| 10                                   | 9,45365    | 939   | 016,3              | 9,19082    | 773   | 146,2              | 9,01758    | 363   | 234,9              | 20       |
| 11                                   | 9,44426    | 939   | 020,8              | 9,18319    | 763   | 150,0              | 9,01412    | 346   | 236,7              | 19       |
|                                      |            | 936   |                    |            | 752   |                    |            | 328   |                    |          |
| 12                                   | 9,43490    |       | 025,3              | 9,17567    |       | 153,8              | 9,01084    |       | 238,4              | 18       |
| 13                                   | 9,42555    | 935   | 029,8              | 9,16826    | 741   | 157,6              | 9,00773    | 311   | 240,0              | 17       |
| 14                                   | 9,41622    | 933   | 034,3              | 9,16095    | 731   | 161,3              | 9,00478    | 295   | 241,5              | 16       |
|                                      |            | 931   |                    |            | 720   |                    |            | 277   |                    |          |
| 15                                   | 9,40691    |       | 038,9              | 9,15375    |       | 164,9              | 9,00201    |       | 243,0              | 15       |
| 16                                   | 9,39763    | 928   | 043,5              | 9,14667    | 708   | 168,5              | 8,99941    | 260   | 244,3              | 14       |
| 17                                   | 9,38838    | 925   | 047,9              | 9,13971    | 696   | 172,1              | 8,99698    | 243   | 245,6              | 13       |
|                                      |            | 921   |                    |            | 684   |                    |            | 224   |                    |          |
| 18                                   | 9,37917    |       | 052,4              | 9,13287    |       | 175,6              | 8,99474    |       | 246,7              | 12       |
| 19                                   | 9,36999    | 918   | 056,9              | 9,12615    | 672   | 179,0              | 8,99267    | 207   | 247,8              | 11       |
| 20                                   | 9,36084    | 915   | 061,4              | 9,11956    | 659   | 182,4              | 8,99077    | 190   | 248,7              | 10       |
|                                      |            | 910   |                    |            | 646   |                    |            | 171   |                    |          |
| 21                                   | 9,35174    |       | 066,0              | 9,11310    |       | 185,7              | 8,98906    |       | 249,7              | 9        |
| 22                                   | 9,34269    | 905   | 070,3              | 9,10677    | 633   | 189,0              | 8,98752    | 154   | 250,5              | 8        |
| 23                                   | 9,33368    | 901   | 074,7              | 9,10057    | 620   | 192,1              | 8,98616    | 136   | 251,2              | 7        |
|                                      |            | 896   |                    |            | 607   |                    |            | 117   |                    |          |
| 24                                   | 9,32472    |       | 079,2              | 9,09450    |       | 195,2              | 8,98499    |       | 251,8              | 6        |
| 25                                   | 9,31582    | 890   | 083,6              | 9,08857    | 593   | 198,3              | 8,98399    | 100   | 252,3              | 5        |
| 26                                   | 9,30697    | 885   | 088,0              | 9,08278    | 579   | 201,2              | 8,98317    | 82    | 252,8              | 4        |
|                                      |            | 879   |                    |            | 565   |                    |            | 64    |                    |          |
| 27                                   | 9,29818    |       | 092,4              | 9,07713    |       | 204,1              | 8,98253    |       | 253,1              | 3        |
| 28                                   | 9,28946    | 872   | 096,7              | 9,07163    | 550   | 207,0              | 8,98208    | 45    | 253,4              | 2        |
| 29                                   | 9,28081    | 865   | 101,0              | 9,06628    | 535   | 209,7              | 8,98181    | 27    | 253,5              | 1        |
| 30                                   | 9,27222    | 859   | 105,2              | 9,06107    | 521   | 212,4              | 8,98172    | 9     | 253,5              | 0        |
|                                      | Sig. VIII. |       | 0,00<br>+          | Sig. VII.  |       | 0,00<br>+          | Sig. VI.   |       | 0,00<br>+          |          |



Equations of the Radius Vector, always additive.

TABLE XVI.

| ARG.<br>II. | Equation<br>II. |       | ARG.<br>II. | ARG.<br>II. | Equation<br>II. |       | ARG.<br>II. |
|-------------|-----------------|-------|-------------|-------------|-----------------|-------|-------------|
|             | 0,0             | Diff. |             |             | 0,0             | Diff. |             |
| 0           | 1629            | 3     | 10000       | 2500        | 0538            | 50    | 7500        |
| 100         | 1626            | 8     | 9900        | 2600        | 0488            | 48    | 7400        |
| 200         | 1618            | 13    | 9800        | 2700        | 0440            | 45    | 7300        |
| 300         | 1605            | 19    | 9700        | 2800        | 0395            | 43    | 7200        |
| 400         | 1586            | 24    | 9600        | 2900        | 0352            | 40    | 7100        |
| 500         | 1562            | 28    | 9500        | 3000        | 0312            | 37    | 7000        |
| 600         | 1534            | 33    | 9400        | 3100        | 0275            | 34    | 6900        |
| 700         | 1501            | 37    | 9300        | 3200        | 0241            | 31    | 6800        |
| 800         | 1464            | 41    | 9200        | 3300        | 0210            | 29    | 6700        |
| 900         | 1423            | 45    | 9100        | 3400        | 0181            | 26    | 6600        |
| 1000        | 1378            | 49    | 9000        | 3500        | 0155            | 24    | 6500        |
| 1100        | 1329            | 51    | 8900        | 3600        | 0131            | 21    | 6400        |
| 1200        | 1278            | 53    | 8800        | 3700        | 0110            | 19    | 6300        |
| 1300        | 1225            | 56    | 8700        | 3800        | 0091            | 17    | 6200        |
| 1400        | 1169            | 57    | 8600        | 3900        | 0074            | 14    | 6100        |
| 1500        | 1112            | 59    | 8500        | 4000        | 0060            | 13    | 6000        |
| 1600        | 1053            | 59    | 8400        | 4100        | 0047            | 11    | 5900        |
| 1700        | 0994            | 59    | 8300        | 4200        | 0036            | 9     | 5800        |
| 1800        | 0935            | 60    | 8200        | 4300        | 0027            | 7     | 5700        |
| 1900        | 0875            | 59    | 8100        | 4400        | 0020            | 7     | 5600        |
| 2000        | 0816            | 59    | 8000        | 4500        | 0013            | 5     | 5500        |
| 2100        | 0757            | 57    | 7900        | 4600        | 0008            | 3     | 5400        |
| 2200        | 0700            | 56    | 7800        | 4700        | 0005            | 3     | 5300        |
| 2300        | 0644            | 54    | 7700        | 4800        | 0002            | 2     | 5200        |
| 2400        | 0590            | 52    | 7600        | 4900        | 0000            | 0     | 5100        |
| 2500        | 0538            |       | 7500        | 5000        | 0000            |       | 5000        |



Equations of the Radius Vector, always additive.

TABLE XVI.

| ARG.<br>III. | Equation<br>III. |       | ARG.<br>III. | Equation<br>III. |       | ARG.<br>III. | Equation<br>III. |       | ARG.<br>III. | Equation<br>III. |       |
|--------------|------------------|-------|--------------|------------------|-------|--------------|------------------|-------|--------------|------------------|-------|
|              | 0,0              | Diff. |              | 0,0              | Diff. |              | 0,0              | Diff. |              | 0,0              | Diff. |
| 0            | 1053             | 8     | 2500         | 0675             | 33    | 5000         | 0018             | 8     | 7500         | 0397             | 33    |
| 100          | 1061             | 6     | 2600         | 0642             | 33    | 5100         | 0010             | 5     | 7600         | 0430             | 33    |
| 200          | 1067             | 3     | 2700         | 0609             | 34    | 5200         | 0005             | 4     | 7700         | 0463             | 33    |
| 300          | 1070             | 2     | 2800         | 0575             | 33    | 5300         | 0001             | 1     | 7800         | 0496             | 34    |
| 400          | 1072             | 1     | 2900         | 0542             | 34    | 5400         | 0000             | 1     | 7900         | 0530             | 34    |
| 500          | 1071             | 3     | 3000         | 0508             | 34    | 5500         | 0001             | 3     | 8000         | 0564             | 33    |
| 600          | 1068             | 5     | 3100         | 0474             | 33    | 5600         | 0004             | 4     | 8100         | 0597             | 34    |
| 700          | 1063             | 7     | 3200         | 0441             | 33    | 5700         | 0008             | 7     | 8200         | 0631             | 33    |
| 800          | 1056             | 9     | 3300         | 0408             | 32    | 5800         | 0015             | 9     | 8300         | 0664             | 32    |
| 900          | 1047             | 11    | 3400         | 0376             | 32    | 5900         | 0024             | 11    | 8400         | 0696             | 32    |
| 1000         | 1036             | 13    | 3500         | 0344             | 31    | 6000         | 0035             | 14    | 8500         | 0728             | 31    |
| 1100         | 1023             | 15    | 3600         | 0313             | 30    | 6100         | 0049             | 15    | 8600         | 0759             | 30    |
| 1200         | 1008             | 17    | 3700         | 0283             | 29    | 6200         | 0064             | 16    | 8700         | 0789             | 29    |
| 1300         | 0991             | 18    | 3800         | 0254             | 28    | 6300         | 0080             | 19    | 8800         | 0818             | 28    |
| 1400         | 0973             | 21    | 3900         | 0226             | 27    | 6400         | 0099             | 20    | 8900         | 0846             | 27    |
| 1500         | 0952             | 21    | 4000         | 0199             | 26    | 6500         | 0119             | 22    | 9000         | 0873             | 26    |
| 1600         | 0931             | 24    | 4100         | 0173             | 24    | 6600         | 0141             | 24    | 9100         | 0899             | 24    |
| 1700         | 0907             | 25    | 4200         | 0149             | 22    | 6700         | 0165             | 25    | 9200         | 0923             | 22    |
| 1800         | 0882             | 26    | 4300         | 0127             | 21    | 6800         | 0190             | 26    | 9300         | 0945             | 21    |
| 1900         | 0856             | 28    | 4400         | 0106             | 19    | 6900         | 0216             | 28    | 9400         | 0966             | 19    |
| 2000         | 0828             | 29    | 4500         | 0087             | 18    | 7000         | 0244             | 29    | 9500         | 0985             | 18    |
| 2100         | 0799             | 30    | 4600         | 0069             | 16    | 7100         | 0273             | 30    | 9600         | 1003             | 15    |
| 2200         | 0769             | 31    | 4700         | 0053             | 13    | 7200         | 0303             | 31    | 9700         | 1018             | 14    |
| 2300         | 0738             | 31    | 4800         | 0040             | 12    | 7300         | 0334             | 31    | 9800         | 1032             | 12    |
| 2400         | 0707             | 32    | 4900         | 0028             | 10    | 7400         | 0365             | 32    | 9900         | 1044             | 10    |
| 2500         | 0675             |       | 5000         | 0018             |       | 7500         | 0397             |       | 10000        | 1054             |       |



Equations of the Radius Vector, always additive.

TABLE XVII.

| ARG<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       | ARG.<br>IV. | Equation<br>IV. |       |
|------------|-----------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|
|            | 0,0             | Diff. |             | 0,0             | Diff. |             | 0,0             | Diff. |             | 0,0             | Diff. |
| 0          | 2346            | 80    | 2500        | 0258            | 50    | 5000        | 0659            | 80    | 7500        | 2746            | 51    |
| 100        | 2266            | 83    | 2600        | 0208            | 46    | 5100        | 0739            | 83    | 7600        | 2797            | 45    |
| 200        | 2183            | 85    | 2700        | 0162            | 40    | 5200        | 0822            | 85    | 7700        | 2842            | 40    |
| 300        | 2098            | 88    | 2800        | 0122            | 34    | 5300        | 0907            | 88    | 7800        | 2882            | 35    |
| 400        | 2010            | 90    | 2900        | 0088            | 29    | 5400        | 0995            | 90    | 7900        | 2917            | 29    |
| 500        | 1920            | 92    | 3000        | 0059            | 24    | 5500        | 1085            | 91    | 8000        | 2946            | 23    |
| 600        | 1828            | 92    | 3100        | 0035            | 17    | 5600        | 1176            | 93    | 8100        | 2969            | 18    |
| 700        | 1736            | 94    | 3200        | 0018            | 12    | 5700        | 1269            | 94    | 8200        | 2987            | 12    |
| 800        | 1642            | 94    | 3300        | 0006            | 6     | 5800        | 1363            | 94    | 8300        | 2999            | 6     |
| 900        | 1548            | 95    | 3400        | 0000            | 0     | 5900        | 1457            | 94    | 8400        | 3005            | 1     |
| 1000       | 1453            | 94    | 3500        | 0000            | 6     | 6000        | 1551            | 95    | 8500        | 3004            | 6     |
| 1100       | 1359            | 94    | 3600        | 0006            | 12    | 6100        | 1646            | 93    | 8600        | 2998            | 11    |
| 1200       | 1265            | 92    | 3700        | 0018            | 18    | 6200        | 1739            | 93    | 8700        | 2987            | 18    |
| 1300       | 1173            | 92    | 3800        | 0036            | 24    | 6300        | 1832            | 91    | 8800        | 2969            | 24    |
| 1400       | 1081            | 90    | 3900        | 0080            | 29    | 6400        | 1923            | 90    | 8900        | 2945            | 29    |
| 1500       | 0991            | 87    | 4000        | 0089            | 35    | 6500        | 2013            | 88    | 9000        | 2916            | 35    |
| 1600       | 0904            | 86    | 4100        | 0124            | 40    | 6600        | 2101            | 85    | 9100        | 2881            | 40    |
| 1700       | 0818            | 82    | 4200        | 0164            | 46    | 6700        | 2186            | 83    | 9200        | 2841            | 46    |
| 1800       | 0736            | 80    | 4300        | 0210            | 50    | 6800        | 2269            | 80    | 9300        | 2795            | 51    |
| 1900       | 0656            | 76    | 4400        | 0260            | 56    | 6900        | 2349            | 76    | 9400        | 2744            | 55    |
| 2000       | 0580            | 73    | 4500        | 0316            | 60    | 7000        | 2425            | 73    | 9500        | 2689            | 60    |
| 2100       | 0507            | 69    | 4600        | 0376            | 65    | 7100        | 2498            | 68    | 9600        | 2629            | 65    |
| 2200       | 0438            | 64    | 4700        | 0441            | 69    | 7200        | 2566            | 65    | 9700        | 2564            | 69    |
| 2300       | 0374            | 60    | 4800        | 0510            | 73    | 7300        | 2631            | 60    | 9800        | 2495            | 73    |
| 2400       | 0314            | 56    | 4900        | 0583            | 76    | 7400        | 2691            | 55    | 9900        | 2422            | 76    |
| 2500       | 0258            |       | 5000        | 0659            |       | 7500        | 2746            |       | 10000       | 2346            |       |



TABLE XVIII. Heliocentric Latitude for 1750, with the Secular Variation.

ARGUMENT VIII. Longitude of Saturn — that of the Node.

| Degrees. | Latitude.   |       |      | Differ.     | Sec. Var. | Latitude.    |              |          | Differ. | Sec. Var. | Latitude.     |  |  | Differ. | Sec. Var. | Degrees. |
|----------|-------------|-------|------|-------------|-----------|--------------|--------------|----------|---------|-----------|---------------|--|--|---------|-----------|----------|
|          | Sig. O. N.  |       |      |             | —         | Sig. I. N.   |              |          |         | —         | Sig. II. N.   |  |  |         | —         |          |
|          | Sig. VI. S. |       |      |             | —         | Sig. VII. S. |              |          |         | —         | Sig. VIII. S. |  |  |         | —         |          |
|          | D. M. S.    | M. S. | SEC. |             | D. M. S.  | M. S.        | SEC.         | D. M. S. |         | M. S.     | SEC.          |  |  |         |           |          |
| 0        | 0. 0. 0     | 2. 37 | 0,0  | 1. 14. 56   | 2. 16     | 8,0          | 2. 9. 49     | 1. 17    | 13,9    | 30        |               |  |  |         |           |          |
| 1        | 0. 2. 37    | 2. 37 | 0,3  | 1. 17. 12   | 2. 14     | 8,3          | 2. 11. 6     | 1. 15    | 14,1    | 29        |               |  |  |         |           |          |
| 2        | 0. 5. 14    | 2. 37 | 0,6  | 1. 19. 26   | 2. 12     | 8,5          | 2. 12. 21    | 1. 13    | 14,2    | 28        |               |  |  |         |           |          |
| 3        | 0. 7. 51    | 2. 36 | 0,9  | 1. 21. 38   | 2. 11     | 8,7          | 2. 13. 34    | 1. 10    | 14,3    | 27        |               |  |  |         |           |          |
| 4        | 0. 10. 27   | 2. 37 | 1,2  | 1. 23. 49   | 2. 9      | 8,9          | 2. 14. 44    | 1. 8     | 14,4    | 26        |               |  |  |         |           |          |
| 5        | 0. 13. 4    | 2. 36 | 1,5  | 1. 25. 58   | 2. 8      | 9,2          | 2. 15. 52    | 1. 5     | 14,5    | 25        |               |  |  |         |           |          |
| 6        | 0. 15. 40   | 2. 36 | 1,7  | 1. 28. 6    | 2. 6      | 9,4          | 2. 16. 57    | 1. 3     | 14,6    | 24        |               |  |  |         |           |          |
| 7        | 0. 18. 16   | 2. 36 | 2,0  | 1. 30. 12   | 2. 5      | 9,7          | 2. 18. 0     | 1. 0     | 14,7    | 23        |               |  |  |         |           |          |
| 8        | 0. 20. 52   | 2. 35 | 2,3  | 1. 32. 17   | 2. 3      | 9,9          | 2. 19. 0     | 0. 57    | 14,8    | 22        |               |  |  |         |           |          |
| 9        | 0. 23. 27   | 2. 35 | 2,5  | 1. 34. 20   | 2. 1      | 10,1         | 2. 19. 57    | 0. 55    | 14,9    | 21        |               |  |  |         |           |          |
| 10       | 0. 26. 2    | 2. 34 | 2,8  | 1. 36. 21   | 1. 59     | 10,3         | 2. 20. 52    | 0. 53    | 15,0    | 20        |               |  |  |         |           |          |
| 11       | 0. 28. 36   | 2. 34 | 3,1  | 1. 38. 20   | 1. 58     | 10,5         | 2. 21. 45    | 0. 50    | 15,1    | 19        |               |  |  |         |           |          |
| 12       | 0. 31. 10   | 2. 33 | 3,3  | 1. 40. 18   | 1. 56     | 10,7         | 2. 22. 35    | 0. 47    | 15,2    | 18        |               |  |  |         |           |          |
| 13       | 0. 33. 43   | 2. 32 | 3,6  | 1. 42. 14   | 1. 54     | 10,9         | 2. 23. 22    | 0. 44    | 15,2    | 17        |               |  |  |         |           |          |
| 14       | 0. 36. 15   | 2. 32 | 3,9  | 1. 44. 8    | 1. 51     | 11,9         | 2. 24. 6     | 0. 42    | 15,3    | 16        |               |  |  |         |           |          |
| 15       | 0. 38. 47   | 2. 32 | 4,1  | 1. 45. 59   | 1. 50     | 11,3         | 2. 24. 48    | 0. 40    | 15,4    | 15        |               |  |  |         |           |          |
| 16       | 0. 41. 19   | 2. 30 | 4,4  | 1. 47. 49   | 1. 49     | 11,5         | 2. 25. 28    | 0. 36    | 15,5    | 14        |               |  |  |         |           |          |
| 17       | 0. 43. 49   | 2. 30 | 4,7  | 1. 49. 38   | 1. 46     | 11,7         | 2. 26. 4     | 0. 34    | 15,5    | 13        |               |  |  |         |           |          |
| 18       | 0. 46. 19   | 2. 29 | 4,9  | 1. 51. 24   | 1. 44     | 11,9         | 2. 26. 38    | 0. 32    | 15,6    | 12        |               |  |  |         |           |          |
| 19       | 0. 48. 48   | 2. 28 | 5,2  | 1. 53. 8    | 1. 42     | 12,1         | 2. 27. 10    | 0. 28    | 15,6    | 11        |               |  |  |         |           |          |
| 20       | 0. 51. 16   | 2. 27 | 5,5  | 1. 54. 50   | 1. 40     | 12,3         | 2. 27. 38    | 0. 26    | 15,7    | 10        |               |  |  |         |           |          |
| 21       | 0. 53. 43   | 2. 26 | 5,7  | 1. 56. 30   | 1. 37     | 12,4         | 2. 28. 4     | 0. 23    | 15,7    | 9         |               |  |  |         |           |          |
| 22       | 0. 56. 9    | 2. 25 | 6,0  | 1. 58. 7    | 1. 36     | 12,6         | 2. 28. 27    | 0. 21    | 15,8    | 8         |               |  |  |         |           |          |
| 23       | 0. 58. 34   | 2. 24 | 6,3  | 1. 59. 43   | 1. 33     | 12,8         | 2. 28. 48    | 0. 18    | 15,8    | 7         |               |  |  |         |           |          |
| 24       | 1. 0. 58    | 2. 23 | 6,5  | 2. 1. 16    | 1. 31     | 12,9         | 2. 29. 6     | 0. 15    | 15,9    | 6         |               |  |  |         |           |          |
| 25       | 1. 3. 21    | 2. 21 | 6,8  | 2. 2. 47    | 1. 29     | 13,1         | 2. 29. 21    | 0. 12    | 15,9    | 5         |               |  |  |         |           |          |
| 26       | 1. 5. 42    | 2. 21 | 7,1  | 2. 4. 16    | 1. 27     | 13,3         | 2. 29. 33    | 0. 10    | 15,9    | 4         |               |  |  |         |           |          |
| 27       | 1. 8. 3     | 2. 19 | 7,3  | 2. 5. 43    | 1. 24     | 13,4         | 2. 29. 43    | 0. 7     | 16,0    | 3         |               |  |  |         |           |          |
| 28       | 1. 10. 22   | 2. 18 | 7,6  | 2. 7. 7     | 1. 22     | 13,6         | 2. 29. 50    | 0. 4     | 16,0    | 2         |               |  |  |         |           |          |
| 29       | 1. 12. 40   | 2. 16 | 7,8  | 2. 8. 29    | 1. 20     | 13,8         | 2. 29. 54    | 0. 1     | 16,0    | 1         |               |  |  |         |           |          |
| 30       | 1. 14. 56   |       | 8,0  | 2. 9. 49    |           | 13,9         | 2. 29. 55    |          | 16,0    | 0         |               |  |  |         |           |          |
|          | Sig. XI. S. |       | —    | Sig. X. S.  |           | —            | Sig. IX. S.  |          | —       |           |               |  |  |         |           |          |
|          | Sig. V. N.  |       | —    | Sig. IV. N. |           | —            | Sig. III. N. |          | —       |           |               |  |  |         |           |          |

For any time before 1750, the Secular Variation changes the Sign.



## TABLES OF SATURN.

TABLE XIX. Reduction to the Ecliptic, and the Logarithm of the Cosine of the Heliocentric Latitude.

| ARGUMENT VIII. Longitude of Saturn — that of the Node. |                          |              |                          |              |                          |              |          |
|--------------------------------------------------------|--------------------------|--------------|--------------------------|--------------|--------------------------|--------------|----------|
| Degrees.                                               | Reduct.<br>to<br>Eclipt. | Log. cofin.  | Reduct.<br>to<br>Eclipt. | Log. cofin.  | Reduct.<br>to<br>Eclipt. | Log. cofin.  | Degrees. |
|                                                        | Sig. O.                  |              | Sig. I.                  |              | Sig. II.                 |              |          |
|                                                        | Sig. VI.                 | Lat. helioc. | Sig. VII.                | Lat. helioc. | Sig. VIII.               | Lat. helioc. |          |
|                                                        | SEC.                     |              | SEC.                     |              | SEC.                     |              |          |
| 0                                                      | 0,0                      | 0,000000     | 84,9                     | 9,999897     | 84,9                     | 9,999690     | 30       |
| 1                                                      | 3,4                      | 0,000000     | 86,6                     | 9,999891     | 83,2                     | 9,999683     | 29       |
| 2                                                      | 6,8                      | 9,999999     | 88,1                     | 9,999884     | 81,3                     | 9,999678     | 28       |
| 3                                                      | 10,2                     | 9,999999     | 89,6                     | 9,999877     | 79,3                     | 9,999672     | 27       |
| 4                                                      | 13,6                     | 9,999998     | 90,9                     | 9,999871     | 77,3                     | 9,999666     | 26       |
| 5                                                      | 17,0                     | 9,999997     | 92,1                     | 9,999864     | 75,1                     | 9,999661     | 25       |
| 6                                                      | 20,3                     | 9,999996     | 93,2                     | 9,999857     | 72,9                     | 9,999655     | 24       |
| 7                                                      | 23,7                     | 9,999994     | 94,3                     | 9,999851     | 70,5                     | 9,999650     | 23       |
| 8                                                      | 27,0                     | 9,999992     | 95,2                     | 9,999843     | 68,1                     | 9,999645     | 22       |
| 9                                                      | 30,3                     | 9,999990     | 95,9                     | 9,999836     | 65,6                     | 9,999640     | 21       |
| 10                                                     | 33,5                     | 9,999988     | 96,6                     | 9,999829     | 63,0                     | 9,999635     | 20       |
| 11                                                     | 36,7                     | 9,999985     | 97,1                     | 9,999822     | 60,4                     | 9,999631     | 19       |
| 12                                                     | 39,9                     | 9,999982     | 97,5                     | 9,999815     | 57,6                     | 9,999626     | 18       |
| 13                                                     | 43,0                     | 9,999979     | 97,8                     | 9,999808     | 54,8                     | 9,999622     | 17       |
| 14                                                     | 46,0                     | 9,999976     | 98,0                     | 9,999801     | 52,0                     | 9,999618     | 16       |
| 15                                                     | 49,0                     | 9,999972     | 98,1                     | 9,999794     | 49,0                     | 9,999615     | 15       |
| 16                                                     | 52,0                     | 9,999969     | 98,0                     | 9,999786     | 46,0                     | 9,999611     | 14       |
| 17                                                     | 54,8                     | 9,999965     | 97,8                     | 9,999779     | 43,0                     | 9,999608     | 13       |
| 18                                                     | 57,6                     | 9,999961     | 97,5                     | 9,999772     | 39,9                     | 9,999605     | 12       |
| 19                                                     | 60,4                     | 9,999956     | 97,1                     | 9,999765     | 36,7                     | 9,999602     | 11       |
| 20                                                     | 63,0                     | 9,999952     | 96,6                     | 9,999758     | 33,5                     | 9,999599     | 10       |
| 21                                                     | 65,6                     | 9,999947     | 95,9                     | 9,999751     | 30,3                     | 9,999597     | 9        |
| 22                                                     | 68,1                     | 9,999942     | 95,2                     | 9,999743     | 27,0                     | 9,999595     | 8        |
| 23                                                     | 70,5                     | 9,999937     | 94,3                     | 9,999737     | 23,7                     | 9,999593     | 7        |
| 24                                                     | 72,9                     | 9,999932     | 93,2                     | 9,999730     | 20,3                     | 9,999591     | 6        |
| 25                                                     | 75,1                     | 9,999926     | 92,1                     | 9,999723     | 17,0                     | 9,999590     | 5        |
| 26                                                     | 77,3                     | 9,999921     | 90,9                     | 9,999716     | 13,6                     | 9,999589     | 4        |
| 27                                                     | 79,3                     | 9,999914     | 89,6                     | 9,999710     | 10,2                     | 9,999588     | 3        |
| 28                                                     | 81,3                     | 9,999909     | 88,1                     | 9,999703     | 6,8                      | 9,999587     | 2        |
| 29                                                     | 83,2                     | 9,999903     | 86,6                     | 9,999697     | 3,4                      | 9,999587     | 1        |
| 30                                                     | 84,9                     | 9,999897     | 84,9                     | 9,999690     | 0,0                      | 9,999587     | 0        |
|                                                        | Sig. XI. +               |              | Sig. X. +                |              | Sig. IX. +               |              |          |
|                                                        | Sig. V. +                |              | Sig. IV. +               |              | Sig. III. +              |              |          |



| Year | Month | Day | Time  | Place | Remarks |
|------|-------|-----|-------|-------|---------|
| 1870 | Jan   | 1   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 2   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 3   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 4   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 5   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 6   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 7   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 8   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 9   | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 10  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 11  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 12  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 13  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 14  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 15  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 16  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 17  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 18  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 19  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 20  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 21  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 22  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 23  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 24  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 25  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 26  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 27  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 28  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 29  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 30  | 10.00 | 10.00 | 10.00   |
| 1870 | Jan   | 31  | 10.00 | 10.00 | 10.00   |



TABLE I. *Epochs* of the Mean Motion of the Georgian, with the Arguments of the Equations.

| YEARS.  | Mean Long. |     |     |      | Aphelion. |     |     |    | Node. |     |     |    |
|---------|------------|-----|-----|------|-----------|-----|-----|----|-------|-----|-----|----|
|         | S.         | D.  | M.  | S.   | S.        | D.  | M.  | S. | S.    | D.  | M.  | S. |
| B. 1680 | 0.         | 17. | 41. | 1,7  | 11.       | 15. | 35. | 13 | 2.    | 12. | 19. | 34 |
| 1690    | 2.         | 0.  | 39. | 48,5 | 11.       | 15. | 44. | 1  | 2.    | 12. | 22. | 11 |
| C. 1700 | 3.         | 13. | 38. | 35,2 | 11.       | 15. | 52. | 49 | 2.    | 12. | 24. | 48 |
| 1720    | 6.         | 9.  | 36. | 51,2 | 11.       | 16. | 10. | 25 | 2.    | 12. | 30. | 2  |
| 1740    | 9.         | 5.  | 35. | 7,1  | 11.       | 16. | 28. | 1  | 2.    | 12. | 35. | 16 |
| 1756    | 11.        | 14. | 21. | 43,8 | 11.       | 16. | 42. | 6  | 2.    | 12. | 39. | 27 |
| B. 1760 | 0.         | 1.  | 33. | 23,0 | 11.       | 16. | 45. | 37 | 2.    | 12. | 40. | 30 |
| 1769    | 1.         | 10. | 14. | 24,5 | 11.       | 16. | 53. | 32 | 2.    | 12. | 42. | 51 |
| B. 1780 | 2.         | 27. | 31. | 38,9 | 11.       | 17. | 3.  | 13 | 2.    | 12. | 45. | 44 |
| 1781    | 3.         | 1.  | 49. | 23,1 | 11.       | 17. | 4.  | 6  | 2.    | 12. | 46. | 0  |
| 1782    | 3.         | 6.  | 7.  | 7,3  | 11.       | 17. | 4.  | 59 | 2.    | 12. | 46. | 16 |
| 1783    | 3.         | 10. | 24. | 51,5 | 11.       | 17. | 5.  | 51 | 2.    | 12. | 46. | 31 |
| B. 1784 | 3.         | 14. | 43. | 18,1 | 11.       | 17. | 6.  | 44 | 2.    | 12. | 46. | 47 |
| 1785    | 3.         | 19. | 1.  | 2,2  | 11.       | 17. | 7.  | 37 | 2.    | 12. | 47. | 2  |
| 1786    | 3.         | 23. | 18. | 46,4 | 11.       | 17. | 8.  | 30 | 2.    | 12. | 47. | 18 |
| 1787    | 3.         | 26. | 36. | 30,7 | 11.       | 17. | 9.  | 23 | 2.    | 12. | 47. | 34 |
| B. 1788 | 4.         | 1.  | 54. | 57,3 | 11.       | 17. | 10. | 15 | 2.    | 12. | 47. | 50 |
| 1789    | 4.         | 6.  | 12. | 41,4 | 11.       | 17. | 11. | 8  | 2.    | 12. | 48. | 5  |
| 1790    | 4.         | 10. | 30. | 25,6 | 11.       | 17. | 12. | 1  | 2.    | 12. | 48. | 21 |
| 1791    | 4.         | 14. | 48. | 9,9  | 11.       | 17. | 12. | 54 | 2.    | 12. | 48. | 37 |
| B. 1792 | 4.         | 19. | 6.  | 36,4 | 11.       | 17. | 13. | 47 | 2.    | 12. | 48. | 52 |
| 1793    | 4.         | 23. | 24. | 20,6 | 11.       | 17. | 14. | 39 | 2.    | 12. | 49. | 8  |
| 1794    | 4.         | 27. | 42. | 4,8  | 11.       | 17. | 15. | 32 | 2.    | 12. | 49. | 24 |
| 1795    | 5.         | 1.  | 59. | 49,0 | 11.       | 17. | 16. | 25 | 2.    | 12. | 49. | 40 |
| B. 1796 | 5.         | 6.  | 18. | 15,6 | 11.       | 17. | 17. | 18 | 2.    | 12. | 49. | 55 |
| 1797    | 5.         | 10. | 35. | 59,8 | 11.       | 17. | 18. | 11 | 2.    | 12. | 50. | 11 |
| 1798    | 5.         | 14. | 53. | 44,0 | 11.       | 17. | 19. | 3  | 2.    | 12. | 50. | 27 |
| 1799    | 5.         | 19. | 11. | 28,2 | 11.       | 17. | 19. | 56 | 2.    | 12. | 50. | 42 |
| C. 1800 | 5.         | 23. | 29. | 12,4 | 11.       | 17. | 20. | 49 | 2.    | 12. | 50. | 58 |
| 1801    | 5.         | 27. | 46. | 56,6 | 11.       | 17. | 21. | 42 | 2.    | 12. | 51. | 14 |
| 1802    | 6.         | 2.  | 4.  | 40,8 | 11.       | 17. | 22. | 35 | 2.    | 12. | 51. | 30 |
| 1803    | 6.         | 6.  | 22. | 24,8 | 11.       | 17. | 23. | 27 | 2.    | 12. | 51. | 45 |
| B. 1804 | 6.         | 10. | 40. | 51,4 | 11.       | 17. | 24. | 20 | 2.    | 12. | 52. | 1  |
| 1805    | 6.         | 14. | 58. | 35,6 | 11.       | 17. | 25. | 13 | 2.    | 12. | 52. | 17 |
| 1806    | 6.         | 19. | 16. | 19,8 | 11.       | 17. | 26. | 6  | 2.    | 12. | 52. | 32 |
| 1807    | 6.         | 23. | 34. | 4,0  | 11.       | 17. | 26. | 59 | 2.    | 12. | 52. | 48 |
| B. 1808 | 6.         | 27. | 52. | 30,6 | 11.       | 17. | 27. | 52 | 2.    | 12. | 53. | 4  |
| 1809    | 7.         | 2.  | 10. | 14,8 | 11.       | 17. | 28. | 45 | 2.    | 12. | 53. | 19 |
| 1810    | 7.         | 6.  | 27. | 59,0 | 11.       | 17. | 29. | 37 | 2.    | 12. | 53. | 35 |
| 1811    | 7.         | 10. | 45. | 43,2 | 11.       | 17. | 30. | 30 | 2.    | 12. | 53. | 51 |
| B. 1812 | 7.         | 15. | 4.  | 9,8  | 11.       | 17. | 31. | 23 | 2.    | 12. | 54. | 6  |
| 1813    | 7.         | 19. | 21. | 54,0 | 11.       | 17. | 32. | 16 | 2.    | 12. | 54. | 22 |
| 1814    | 7.         | 23. | 39. | 38,2 | 11.       | 17. | 33. | 9  | 2.    | 12. | 54. | 37 |
| 1815    | 7.         | 27. | 57. | 22,4 | 11.       | 17. | 34. | 1  | 2.    | 12. | 54. | 53 |
| B. 1816 | 8.         | 2.  | 15. | 49,0 | 11.       | 17. | 34. | 54 | 2.    | 12. | 55. | 9  |
| 1817    | 8.         | 6.  | 33. | 33,2 | 11.       | 17. | 35. | 47 | 2.    | 12. | 55. | 24 |
| 1818    | 8.         | 10. | 51. | 17,3 | 11.       | 17. | 36. | 40 | 2.    | 12. | 55. | 40 |
| 1819    | 8.         | 15. | 9.  | 1,6  | 11.       | 17. | 37. | 33 | 2.    | 12. | 55. | 56 |
| 1820    | 8.         | 19. | 27. | 28,2 | 11.       | 17. | 38. | 25 | 2.    | 12. | 56. | 12 |



TABLE I. *Epochs of the Mean Longitude of the Georgian, with the Arguments of the Equations.*

| YEARS.  | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. |
|---------|-------------|--------------|-------------|------------|-------------|--------------|---------------|
| B. 1680 | 215         | 126          | 9068        | 376        | 8907        | 057          | 969           |
| 1690    | 435         | 228          | 0085        | 698        | 9084        | 781          | 574           |
| C. 1700 | 656         | 329          | 1100        | 020        | 9260        | 505          | 179           |
| B. 1720 | 096         | 532          | 3132        | 664        | 9612        | 953          | 389           |
| B. 1740 | 537         | 735          | 5162        | 308        | 9963        | 401          | 597           |
| B. 1756 | 890         | 898          | 6788        | 823        | 0245        | 560          | 567           |
| B. 1760 | 978         | 938          | 7194        | 951        | 0315        | 849          | 809           |
| 1769    | 177         | 029          | 8108        | 241        | 0473        | 501          | 353           |
| B. 1780 | 419         | 141          | 9225        | 595        | 0666        | 297          | 019           |
| 1781    | 441         | 151          | 9327        | 628        | 0684        | 370          | 079           |
| 1782    | 463         | 161          | 9428        | 660        | 0702        | 442          | 140           |
| 1783    | 485         | 171          | 9530        | 692        | 0719        | 515          | 200           |
| B. 1784 | 507         | 182          | 9632        | 724        | 0737        | 587          | 261           |
| 1785    | 529         | 192          | 9733        | 756        | 0754        | 659          | 321           |
| 1786    | 552         | 202          | 9835        | 789        | 0772        | 732          | 382           |
| 1787    | 574         | 212          | 9936        | 821        | 0790        | 804          | 442           |
| B. 1788 | 596         | 222          | 0038        | 853        | 0807        | 877          | 503           |
| 1789    | 618         | 232          | 0139        | 885        | 0825        | 949          | 563           |
| 1790    | 640         | 242          | 0241        | 917        | 0842        | 021          | 624           |
| 1791    | 662         | 253          | 0342        | 949        | 0860        | 094          | 684           |
| B. 1792 | 684         | 263          | 0444        | 982        | 0877        | 166          | 745           |
| 1793    | 706         | 273          | 0546        | 014        | 0895        | 239          | 805           |
| 1794    | 728         | 283          | 0647        | 046        | 0913        | 311          | 866           |
| 1795    | 750         | 293          | 0749        | 078        | 0930        | 383          | 926           |
| B. 1796 | 772         | 303          | 0850        | 110        | 0947        | 456          | 987           |
| 1797    | 794         | 313          | 0952        | 143        | 0965        | 528          | 047           |
| 1798    | 816         | 324          | 1053        | 175        | 0983        | 601          | 108           |
| 1799    | 838         | 334          | 1155        | 207        | 1000        | 673          | 168           |
| C. 1800 | 860         | 344          | 1256        | 239        | 1018        | 745          | 229           |
| 1801    | 882         | 354          | 1358        | 271        | 1036        | 817          | 289           |
| 1802    | 904         | 364          | 1459        | 304        | 1053        | 890          | 350           |
| 1803    | 926         | 374          | 1561        | 336        | 1071        | 962          | 410           |
| B. 1804 | 948         | 385          | 1662        | 368        | 1088        | 035          | 471           |
| 1805    | 970         | 395          | 1764        | 400        | 1106        | 107          | 531           |
| 1806    | 992         | 405          | 1865        | 432        | 1123        | 179          | 592           |
| 1807    | 014         | 415          | 1967        | 465        | 1141        | 252          | 652           |
| B. 1808 | 036         | 425          | 2068        | 497        | 1159        | 324          | 713           |
| 1809    | 058         | 435          | 2170        | 529        | 1176        | 397          | 773           |
| 1810    | 080         | 445          | 2272        | 561        | 1194        | 468          | 834           |
| 1811    | 103         | 456          | 2373        | 593        | 1211        | 541          | 894           |
| B. 1812 | 125         | 466          | 2475        | 625        | 1229        | 614          | 955           |
| 1813    | 147         | 476          | 2577        | 657        | 1247        | 686          | 015           |
| 1814    | 169         | 486          | 2678        | 689        | 1264        | 759          | 076           |
| 1815    | 191         | 496          | 2780        | 722        | 1282        | 831          | 136           |
| B. 1816 | 213         | 507          | 2881        | 754        | 1299        | 904          | 197           |
| 1817    | 235         | 517          | 2983        | 786        | 1317        | 976          | 257           |
| 1818    | 257         | 527          | 3084        | 818        | 1334        | 048          | 318           |
| 1819    | 279         | 537          | 3186        | 850        | 1352        | 121          | 378           |
| B. 1820 | 301         | 547          | 3287        | 883        | 1370        | 193          | 439           |



TABLE II. Mean Motion of the Georgian for *Julian Years*, with the Arguments of the Equations.

|    | YEARS. | Mot. in Long. |     |     |      | Mot. Aphelion. |     |     |     | Mot. Node. |    |     |    |    |
|----|--------|---------------|-----|-----|------|----------------|-----|-----|-----|------------|----|-----|----|----|
|    |        | S.            | D.  | M.  | S.   | S.             | D.  | M.  | S.  | S.         | D. | M.  | S. |    |
|    | 1      | 0             | 4.  | 17. | 44,2 | 0.             | 0.  | 0.  | 53  | 0.         | 0. | 0.  | 16 |    |
|    | 2      | 0.            | 8.  | 35. | 28,4 | 0.             | 0.  | 1.  | 46  | 0.         | 0. | 0.  | 31 |    |
|    | 3      | 0.            | 12. | 53. | 12,6 | 0.             | 0.  | 2.  | 38  | 0.         | 0. | 0.  | 47 |    |
| B. | 4      | 0.            | 17. | 11. | 39,2 | 0.             | 0.  | 3.  | 31  | 0.         | 0. | 1.  | 3  |    |
|    | 5      | 0.            | 21. | 29. | 23,4 | 0.             | 0.  | 4.  | 24  | 0.         | 0. | 1.  | 18 |    |
|    | 6      | 0.            | 25. | 47. | 7,5  | 0.             | 0.  | 5.  | 17  | 0.         | 0. | 1.  | 34 |    |
|    | 7      | 1.            | 0.  | 4.  | 51,8 | 0.             | 0.  | 6.  | 10  | 0.         | 0. | 1.  | 50 |    |
| B. | 8      | 1.            | 4.  | 23. | 18,4 | 0.             | 0.  | 7.  | 2   | 0.         | 0. | 2.  | 6  |    |
|    | 9      | 1.            | 8.  | 41. | 2,6  | 0.             | 0.  | 7.  | 55  | 0.         | 0. | 2.  | 21 |    |
|    | 10     | 1.            | 12. | 58. | 46,8 | 0.             | 0.  | 8.  | 48  | 0.         | 0. | 2.  | 37 |    |
|    | 11     | 1.            | 17. | 16. | 31,0 | 0.             | 0.  | 9.  | 41  | 0.         | 0. | 2.  | 53 |    |
| B. | 12     | 1.            | 21. | 34. | 57,5 | 0.             | 0.  | 10. | 34  | 0.         | 0. | 3.  | 8  |    |
|    | 13     | 1.            | 25. | 52. | 4    | 1,7            | 0.  | 0.  | 11. | 26         | 0. | 0.  | 3. | 24 |
|    | 14     | 2.            | 0.  | 10. | 26,0 | 0.             | 0.  | 12. | 19  | 0.         | 0. | 3.  | 40 |    |
|    | 15     | 2.            | 4.  | 28. | 10,2 | 0.             | 0.  | 13. | 12  | 0.         | 0. | 3.  | 55 |    |
| B. | 16     | 2.            | 8.  | 46. | 36,7 | 0.             | 0.  | 14. | 5   | 0.         | 0. | 4.  | 11 |    |
|    | 17     | 2.            | 13. | 4.  | 20,9 | 0.             | 0.  | 14. | 58  | 0.         | 0. | 4.  | 27 |    |
|    | 18     | 2.            | 17. | 22. | 5,1  | 0.             | 0.  | 15. | 50  | 0.         | 0. | 4.  | 43 |    |
|    | 19     | 2.            | 21. | 39. | 49,3 | 0.             | 0.  | 16. | 43  | 0.         | 0. | 4.  | 58 |    |
|    | 20     | 2.            | 25. | 58. | 15,9 | 0.             | 0.  | 17. | 36  | 0.         | 0. | 5.  | 14 |    |
|    | 40     | 5.            | 21. | 56. | 31,8 | 0.             | 0.  | 35. | 12  | 0.         | 0. | 10. | 28 |    |
|    | 60     | 8.            | 17. | 54. | 47,7 | 0.             | 0.  | 52. | 48  | 0.         | 0. | 15. | 42 |    |
|    | 80     | 11.           | 13. | 53. | 3,6  | 0.             | 1.  | 10. | 24  | 0.         | 0. | 20. | 56 |    |
|    | 100    | 2.            | 9.  | 51. | 19,5 | 0.             | 1.  | 28. | 0   | 0.         | 0. | 26. | 10 |    |
|    | 200    | 4.            | 19. | 42. | 39,1 | 0.             | 2.  | 56. | 6   | 0.         | 0. | 52. | 20 |    |
|    | 300    | 6.            | 29. | 33. | 58,6 | 0.             | 4.  | 24. | 0   | 0.         | 1. | 18. | 30 |    |
|    | 400    | 9.            | 9.  | 25. | 18,1 | 0.             | 5.  | 52. | 0   | 0.         | 1. | 44. | 40 |    |
|    | 500    | 11.           | 19. | 16. | 37,7 | 0.             | 7.  | 20. | 0   | 0.         | 2. | 10. | 50 |    |
|    | 600    | 1.            | 29. | 7.  | 57,2 | 0.             | 8.  | 48. | 0   | 0.         | 2. | 37. | 0  |    |
|    | 700    | 4.            | 8.  | 59. | 16,7 | 0.             | 10. | 16. | 0   | 0.         | 3. | 3.  | 10 |    |
|    | 800    | 6.            | 18. | 50. | 36,3 | 0.             | 11. | 44. | 0   | 0.         | 3. | 29. | 20 |    |
|    | 900    | 8.            | 28. | 41. | 55,8 | 0.             | 13. | 12. | 0   | 0.         | 3. | 55. | 30 |    |
|    | 1000   | 11.           | 8.  | 33. | 15,4 | 0.             | 14. | 40. | 0   | 0.         | 4. | 21. | 34 |    |

Bifextiles.

Bisextiles.



TABLE II. Mean Motion of the Georgian for *Julian Years*, with the Arguments of the Equations.

|  | YEARS. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. |
|--|--------|-------------|--------------|-------------|------------|-------------|--------------|---------------|
|  | 1      | 022         | 010          | 0102        | 032        | 0018        | 072          | 060           |
|  | 2      | 044         | 020          | 0203        | 064        | 0035        | 145          | 121           |
|  | 3      | 066         | 030          | 0305        | 097        | 0053        | 217          | 181           |
|  | B. 4   | 088         | 041          | 0406        | 129        | 0070        | 290          | 242           |
|  | 5      | 110         | 051          | 0508        | 161        | 0088        | 362          | 302           |
|  | 6      | 132         | 061          | 0609        | 193        | 0105        | 434          | 363           |
|  | B. 7   | 154         | 071          | 0711        | 225        | 0123        | 507          | 423           |
|  | 8      | 176         | 081          | 0812        | 258        | 0141        | 579          | 484           |
|  | 9      | 198         | 091          | 0914        | 290        | 0158        | 652          | 544           |
|  | 10     | 220         | 101          | 1016        | 322        | 0176        | 724          | 605           |
|  | 11     | 243         | 112          | 1117        | 354        | 0193        | 796          | 665           |
|  | B. 12  | 265         | 122          | 1219        | 386        | 0211        | 869          | 726           |
|  | 13     | 287         | 132          | 1320        | 418        | 0229        | 941          | 786           |
|  | 14     | 309         | 142          | 1422        | 451        | 0246        | 014          | 847           |
|  | 15     | 331         | 152          | 1523        | 483        | 0264        | 086          | 907           |
|  | B. 16  | 353         | 162          | 1625        | 515        | 0281        | 158          | 968           |
|  | 17     | 375         | 172          | 1727        | 547        | 0299        | 231          | 028           |
|  | 18     | 397         | 183          | 1828        | 579        | 0316        | 303          | 089           |
|  | 19     | 419         | 193          | 1930        | 612        | 0334        | 376          | 150           |
|  | 20     | 441         | 203          | 2031        | 644        | 0352        | 448          | 210           |
|  | 40     | 882         | 406          | 4062        | 288        | 0703        | 896          | 420           |
|  | 60     | 323         | 609          | 6094        | 931        | 1055        | 344          | 630           |
|  | 80     | 764         | 812          | 8125        | 575        | 1406        | 792          | 840           |
|  | 100    | 205         | 015          | 0156        | 219        | 1758        | 240          | 050           |
|  | 200    | 410         | 030          | 0312        | 438        | 3516        | 480          | 100           |
|  | 300    | 615         | 045          | 0468        | 657        | 5274        | 720          | 150           |
|  | 400    | 820         | 060          | 0624        | 876        | 7032        | 960          | 200           |
|  | 500    | 025         | 075          | 0780        | 095        | 8790        | 200          | 250           |
|  | 600    | 230         | 090          | 0936        | 314        | 0548        | 440          | 300           |
|  | 700    | 435         | 105          | 1092        | 533        | 2306        | 680          | 350           |
|  | 800    | 640         | 120          | 1248        | 752        | 4064        | 920          | 400           |
|  | 900    | 845         | 135          | 1404        | 971        | 5822        | 160          | 450           |
|  | 1000   | 050         | 150          | 1560        | 190        | 7580        | 400          | 500           |

Bifextiles.



TABLE III. Mean Motion of the Georgian for *Months*, with the Arguments of the Equations.

| <i>Months.</i> | Mot. Long. |     |      | Aphel. | Node. | ARG.<br>II. | ARG.<br>III. | ARG.<br>IV. | ARG.<br>V. | ARG.<br>VI. | ARG.<br>VII. | ARG.<br>VIII. |
|----------------|------------|-----|------|--------|-------|-------------|--------------|-------------|------------|-------------|--------------|---------------|
|                | D.         | M.  | S.   |        |       |             |              |             |            |             |              |               |
| January        | 0.         | 0.  | 0,0  | 0      | 0     | 0           | 0            | 0           | 0          | 0           | 0            | 0             |
| February       | 0.         | 21. | 53,4 | 4      | 1     | 2           | 1            | 9           | 3          | 1           | 6            | 5             |
| March          | 0.         | 41. | 39,7 | 9      | 2     | 4           | 2            | 17          | 5          | 3           | 12           | 10            |
| April          | 1.         | 3.  | 33,1 | 13     | 4     | 6           | 2            | 25          | 8          | 4           | 18           | 15            |
| May            | 1.         | 24. | 44,2 | 17     | 5     | 7           | 3            | 33          | 11         | 6           | 24           | 20            |
| June           | 1.         | 46. | 37,5 | 22     | 6     | 9           | 4            | 42          | 13         | 7           | 30           | 25            |
| July           | 2.         | 7.  | 48,6 | 26     | 8     | 11          | 5            | 50          | 16         | 9           | 36           | 30            |
| August         | 2.         | 29. | 42,0 | 31     | 9     | 13          | 6            | 59          | 19         | 10          | 42           | 35            |
| September      | 2.         | 51. | 35,4 | 35     | 10    | 15          | 7            | 68          | 22         | 12          | 48           | 40            |
| October        | 3.         | 12. | 46,4 | 39     | 12    | 17          | 8            | 76          | 24         | 13          | 54           | 45            |
| November       | 3.         | 34. | 39,8 | 44     | 13    | 18          | 8            | 85          | 27         | 15          | 60           | 50            |
| December       | 3.         | 55. | 50,8 | 48     | 15    | 20          | 9            | 93          | 30         | 16          | 66           | 55            |

TABLE IV. Mean Motion of the Georgian for *Hours* and *Minutes*.

| Hours. | Mot. Lon. |  | Hours. | Mot. Lon. |  | Min. | Mot. Lon. |  | Min. | Mot. Lon. |  |
|--------|-----------|--|--------|-----------|--|------|-----------|--|------|-----------|--|
|        | SEC.      |  |        | SEC.      |  |      | SEC.      |  |      | SEC.      |  |
| 1      | 1,8       |  | 13     | 22,9      |  | 1    | 0,0       |  | 27   | 0,8       |  |
| 2      | 3,5       |  | 14     | 24,7      |  | 2    | 0,0       |  | 30   | 0,9       |  |
| 3      | 5,3       |  | 15     | 26,5      |  | 3    | 0,1       |  | 33   | 1,0       |  |
| 4      | 7,1       |  | 16     | 28,2      |  | 4    | 0,1       |  | 36   | 1,1       |  |
| 5      | 8,8       |  | 17     | 30,0      |  | 5    | 0,1       |  | 39   | 1,1       |  |
| 6      | 10,6      |  | 18     | 31,8      |  | 6    | 0,2       |  | 42   | 1,2       |  |
| 7      | 12,4      |  | 19     | 33,5      |  | 9    | 0,3       |  | 45   | 1,3       |  |
| 8      | 14,1      |  | 20     | 35,3      |  | 12   | 0,4       |  | 48   | 1,4       |  |
| 9      | 15,9      |  | 21     | 37,1      |  | 15   | 0,4       |  | 51   | 1,5       |  |
| 10     | 17,7      |  | 22     | 38,8      |  | 18   | 0,5       |  | 54   | 1,6       |  |
| 11     | 19,4      |  | 23     | 40,6      |  | 21   | 0,6       |  | 57   | 1,7       |  |
| 12     | 21,2      |  | 24     | 42,4      |  | 24   | 0,7       |  | 60   | 1,8       |  |



TABLE V. Mean Motion of the Georgian for *Days*, with the Arguments of the Equations.

| Days of the Month. | Motion in Longitude. |     |      | Mot. Aphel. | Mot. Node. | Arg. II. | Arg. III. | Arg. IV. | Arg. V. | Arg. VI. | Arg. VII. | Arg. VIII. |
|--------------------|----------------------|-----|------|-------------|------------|----------|-----------|----------|---------|----------|-----------|------------|
|                    | D.                   | M.  | S.   | SEC.        | SEC.       |          |           |          |         |          |           |            |
| 1                  | 0.                   | 0.  | 42,4 | 0           | 0          | 0        | 0         | 0        | 0       | 0        | 0         | 0          |
| 2                  | 0.                   | 1.  | 24,7 | 0           | 0          | 0        | 0         | 0        | 0       | 0        | 0         | 0          |
| 3                  | 0.                   | 2.  | 7,1  | 0           | 0          | 0        | 0         | 1        | 0       | 0        | 1         | 0          |
| 4                  | 0.                   | 2.  | 49,5 | 1           | 0          | 0        | 0         | 1        | 0       | 0        | 1         | 1          |
| 5                  | 0.                   | 3.  | 31,8 | 1           | 0          | 0        | 0         | 1        | 0       | 0        | 1         | 1          |
| 6                  | 0.                   | 4.  | 14,2 | 1           | 0          | 0        | 0         | 2        | 1       | 0        | 1         | 1          |
| 7                  | 0.                   | 4.  | 56,6 | 1           | 0          | 0        | 0         | 2        | 1       | 0        | 1         | 1          |
| 8                  | 0.                   | 5.  | 38,9 | 1           | 0          | 0        | 0         | 2        | 1       | 0        | 1         | 1          |
| 9                  | 0.                   | 6.  | 21,3 | 1           | 0          | 0        | 0         | 2        | 1       | 0        | 2         | 1          |
| 10                 | 0.                   | 7.  | 3,7  | 1           | 0          | 0        | 0         | 3        | 1       | 0        | 2         | 2          |
| 11                 | 0.                   | 7.  | 46,0 | 2           | 0          | 1        | 0         | 3        | 1       | 1        | 2         | 2          |
| 12                 | 0.                   | 8.  | 28,4 | 2           | 1          | 1        | 0         | 3        | 1       | 1        | 2         | 2          |
| 13                 | 0.                   | 9.  | 10,8 | 2           | 1          | 1        | 0         | 4        | 1       | 1        | 2         | 2          |
| 14                 | 0.                   | 9.  | 53,1 | 2           | 1          | 1        | 0         | 4        | 1       | 1        | 3         | 2          |
| 15                 | 0.                   | 10. | 35,5 | 2           | 1          | 1        | 0         | 4        | 1       | 1        | 3         | 2          |
| 16                 | 0.                   | 11. | 17,9 | 2           | 1          | 1        | 0         | 4        | 1       | 1        | 3         | 3          |
| 17                 | 0.                   | 12. | 0,2  | 2           | 1          | 1        | 0         | 5        | 1       | 1        | 3         | 3          |
| 18                 | 0.                   | 12. | 42,6 | 3           | 1          | 1        | 0         | 5        | 2       | 1        | 3         | 3          |
| 19                 | 0.                   | 13. | 25,0 | 3           | 1          | 1        | 1         | 5        | 2       | 1        | 4         | 3          |
| 20                 | 0.                   | 14. | 7,4  | 3           | 1          | 1        | 1         | 5        | 2       | 1        | 4         | 3          |
| 21                 | 0.                   | 14. | 49,7 | 3           | 1          | 1        | 1         | 6        | 2       | 1        | 4         | 3          |
| 22                 | 0.                   | 15. | 32,1 | 3           | 1          | 1        | 1         | 6        | 2       | 1        | 4         | 4          |
| 23                 | 0.                   | 16. | 14,5 | 3           | 1          | 1        | 1         | 6        | 2       | 1        | 4         | 4          |
| 24                 | 0.                   | 16. | 56,8 | 3           | 1          | 1        | 1         | 6        | 2       | 1        | 5         | 4          |
| 25                 | 0.                   | 17. | 39,2 | 4           | 1          | 2        | 1         | 7        | 2       | 1        | 5         | 4          |
| 26                 | 0.                   | 18. | 21,6 | 4           | 1          | 2        | 1         | 7        | 2       | 1        | 5         | 4          |
| 27                 | 0.                   | 19. | 3,9  | 4           | 1          | 2        | 1         | 7        | 2       | 1        | 5         | 4          |
| 28                 | 0.                   | 19. | 46,3 | 4           | 1          | 2        | 1         | 8        | 2       | 1        | 5         | 5          |
| 29                 | 0.                   | 20. | 28,7 | 4           | 1          | 2        | 1         | 8        | 3       | 1        | 6         | 5          |
| 30                 | 0.                   | 21. | 11,0 | 4           | 1          | 2        | 1         | 8        | 3       | 1        | 6         | 5          |
| 31                 | 0.                   | 21. | 53,4 | 4           | 1          | 2        | 1         | 9        | 3       | 1        | 6         | 5          |



TABLE VI. Equation of the Orbit of the Georgian for 1780, with the Secular Variation.

| ARGUMENT I. (Mean Long.—Aphelion), or mean Anomaly. |               |         |           |              |         |           |          |
|-----------------------------------------------------|---------------|---------|-----------|--------------|---------|-----------|----------|
| Degrees.                                            | Sig. O.       |         |           | Sig. I.      |         |           | Degrees. |
|                                                     | Equation.     | Diff.   | Sec. Var. | Equation.    | Diff.   | Sec. Var. |          |
|                                                     | —             |         | +         | —            |         | +         |          |
|                                                     | D. M. S.      | M. S.   | SEC.      | D. M. S.     | M. S.   | SEC.      |          |
| 0                                                   | 0. 0. 0,0     |         | 0,00      | 2. 32. 42,3  | 4. 40,0 | 4,97      | 30       |
| 1                                                   | 0. 5. 17,5    | 5. 17,5 | 0,17      | 2. 37. 22,3  | 4. 37,5 | 5,13      | 29       |
| 2                                                   | 0. 10. 34,9   | 5. 17,4 | 0,34      | 2. 41. 59,8  | 4. 35,0 | 5,28      | 28       |
| 3                                                   | 0. 15. 52,3   | 5. 17,4 | 0,51      | 2. 46. 34,8  | 4. 32,4 | 5,43      | 27       |
| 4                                                   | 0. 21. 9,4    | 5. 17,1 | 0,68      | 2. 51. 7,2   | 4. 29,7 | 5,58      | 26       |
| 5                                                   | 0. 26. 26,1   | 5. 16,7 | 0,85      | 2. 55. 36,9  | 4. 27,0 | 5,73      | 25       |
| 6                                                   | 0. 31. 42,4   | 5. 16,3 | 1,02      | 3. 0. 3,9    | 4. 24,0 | 5,88      | 24       |
| 7                                                   | 0. 36. 58,2   | 5. 15,8 | 1,19      | 3. 4. 27,9   | 4. 21,1 | 6,02      | 23       |
| 8                                                   | 0. 42. 13,5   | 5. 15,3 | 1,36      | 3. 8. 49,0   | 4. 18,1 | 6,17      | 22       |
| 9                                                   | 0. 47. 28,1   | 5. 14,6 | 1,53      | 3. 13. 7,1   | 4. 15,1 | 6,31      | 21       |
| 10                                                  | 0. 52. 42,0   | 5. 13,9 | 1,70      | 3. 17. 22,2  | 4. 11,8 | 6,46      | 20       |
| 11                                                  | 0. 57. 55,0   | 5. 13,0 | 1,87      | 3. 21. 34,0  | 4. 8,7  | 6,60      | 19       |
| 12                                                  | 1. 3. 7,2     | 5. 12,2 | 2,04      | 3. 25. 42,7  | 4. 5,4  | 6,74      | 18       |
| 13                                                  | 1. 8. 18,4    | 5. 11,2 | 2,21      | 3. 29. 48,1  | 4. 2,0  | 6,87      | 17       |
| 14                                                  | 1. 13. 28,6   | 5. 10,2 | 2,38      | 3. 33. 50,1  | 3. 58,7 | 7,01      | 16       |
| 15                                                  | 1. 18. 37,6   | 5. 9,0  | 2,55      | 3. 37. 48,8  | 3. 55,0 | 7,15      | 15       |
| 16                                                  | 1. 23. 45,4   | 5. 7,8  | 2,71      | 3. 41. 43,8  | 3. 51,5 | 7,28      | 14       |
| 17                                                  | 1. 28. 51,9   | 5. 5,1  | 2,88      | 3. 45. 35,3  | 3. 47,9 | 7,41      | 13       |
| 18                                                  | 1. 33. 57,0   | 5. 3,7  | 3,05      | 3. 49. 23,2  | 3. 44,1 | 7,54      | 12       |
| 19                                                  | 1. 39. 0,7    | 5. 2,1  | 3,21      | 3. 53. 7,3   | 3. 40,3 | 7,67      | 11       |
| 20                                                  | 1. 44. 2,8    | 5. 0,5  | 3,38      | 3. 56. 47,6  | 3. 36,5 | 7,79      | 10       |
| 21                                                  | 1. 49. 3,3    | 4. 58,8 | 3,54      | 4. 0. 24,1   | 3. 32,6 | 7,92      | 9        |
| 22                                                  | 1. 54. 2,1    | 4. 57,1 | 3,70      | 4. 3. 56,7   | 3. 28,6 | 8,04      | 8        |
| 23                                                  | 1. 58. 59,2   | 4. 55,2 | 3,86      | 4. 7. 25,3   | 3. 24,6 | 8,16      | 7        |
| 24                                                  | 2. 3. 54,4    | 4. 53,3 | 4,02      | 4. 10. 49,9  | 3. 20,4 | 8,28      | 6        |
| 25                                                  | 2. 8. 47,7    | 4. 51,2 | 4,18      | 4. 14. 10,3  | 3. 16,3 | 8,40      | 5        |
| 26                                                  | 2. 13. 38,9   | 4. 49,1 | 4,34      | 4. 17. 26,6  | 3. 12,0 | 8,51      | 4        |
| 27                                                  | 2. 18. 28,0   | 4. 47,0 | 4,50      | 4. 20. 38,6  | 3. 7,7  | 8,63      | 3        |
| 28                                                  | 2. 23. 15,0   | 4. 44,8 | 4,66      | 4. 23. 46,3  | 3. 3,3  | 8,74      | 2        |
| 29                                                  | 2. 27. 59,8   | 4. 42,5 | 4,81      | 4. 26. 49,6  | 2. 58,9 | 8,84      | 1        |
| 30                                                  | 2. 32. 42,3   |         | 4,97      | 4. 29. 48,5  |         | 8,95      | 0        |
|                                                     | +<br>Sig. XI. |         | —         | +<br>Sig. X. |         | —         |          |



TABLE VI. Equation of the Orbit of the Georgian for 1780, with the Secular Variation.

| ARGUMENT I. (Mean Long. — Aphelion), or mean Anomaly. |               |         |           |                 |         |           |          |
|-------------------------------------------------------|---------------|---------|-----------|-----------------|---------|-----------|----------|
| Degrees.                                              | Sig. II.      |         |           | Sig. III.       |         |           | Degrees. |
|                                                       | Equation.     | Diff.   | Sec. Var. | Equation.       | Diff.   | Sec. Var. |          |
|                                                       | —             |         | +         | —               |         | +         |          |
|                                                       | D. M. S.      | M. S.   | SEC.      | D. M. S.        | M. S.   | SEC.      |          |
| 0                                                     | 4. 29. 48,5   | 2. 54,4 | 8,95      | 5. 20. 30,6     | 0. 16,3 | 10,95     | 30       |
| 1                                                     | 4. 32. 42,9   | 2. 49,9 | 9,06      | 5. 20. 46,9     | 0. 11,0 | 10,97     | 29       |
| 2                                                     | 4. 35. 32,8   | 2. 45,2 | 9,16      | 5. 20. 57,9     | 0. 4,8  | 10,99     | 28       |
| 3                                                     | 4. 38. 18,0   | 2. 40,6 | 9,26      | 5. 21. 2,7      | 0. 1,0  | 11,00     | 27       |
| 4                                                     | 4. 40. 58,6   | 2. 35,9 | 9,35      | 5. 21. 1,7      | 0. 6,7  | 11,02     | 26       |
| 5                                                     | 4. 43. 34,5   | 2. 31,1 | 9,45      | 5. 20. 55,0     | 0. 12,7 | 11,02     | 25       |
| 6                                                     | 4. 46. 5,6    | 2. 26,2 | 9,54      | 5. 20. 42,3     | 0. 18,7 | 11,03     | 24       |
| 7                                                     | 4. 48. 31,8   | 2. 21,3 | 9,63      | 5. 20. 23,6     | 0. 24,5 | 11,03     | 23       |
| 8                                                     | 4. 50. 53,1   | 2. 16,4 | 9,72      | 5. 19. 59,1     | 0. 30,5 | 11,03     | 22       |
| 9                                                     | 4. 53. 9,5    | 2. 11,5 | 9,81      | 5. 19. 28,6     | 0. 36,3 | 11,02     | 21       |
| 10                                                    | 4. 55. 21,0   | 2. 6,4  | 9,89      | 5. 18. 52,3     | 0. 42,3 | 11,01     | 20       |
| 11                                                    | 4. 57. 27,4   | 2. 1,2  | 9,97      | 5. 18. 10,0     | 0. 48,5 | 11,00     | 19       |
| 12                                                    | 4. 59. 28,6   | 1. 56,2 | 10,04     | 5. 17. 21,5     | 0. 54,3 | 10,98     | 18       |
| 13                                                    | 5. 1. 24,8    | 1. 50,8 | 10,11     | 5. 16. 27,2     | 1. 0,2  | 10,96     | 17       |
| 14                                                    | 5. 3. 15,6    | 1. 45,8 | 10,19     | 5. 15. 27,0     | 1. 6,2  | 10,94     | 16       |
| 15                                                    | 5. 5. 1,4     | 1. 40,4 | 10,26     | 5. 14. 20,8     | 1. 12,2 | 10,91     | 15       |
| 16                                                    | 5. 6. 41,8    | 1. 35,1 | 10,33     | 5. 13. 8,6      | 1. 18,2 | 10,88     | 14       |
| 17                                                    | 5. 8. 16,9    | 1. 29,8 | 10,39     | 5. 11. 50,4     | 1. 24,0 | 10,85     | 13       |
| 18                                                    | 5. 9. 46,7    | 1. 24,2 | 10,45     | 5. 10. 26,4     | 1. 30,0 | 10,81     | 12       |
| 19                                                    | 5. 11. 10,9   | 1. 18,9 | 10,51     | 5. 8. 56,4      | 1. 36,0 | 10,77     | 11       |
| 20                                                    | 5. 12. 29,8   | 1. 13,4 | 10,56     | 5. 7. 20,4      | 1. 41,8 | 10,73     | 10       |
| 21                                                    | 5. 13. 43,2   | 1. 7,8  | 10,61     | 5. 5. 38,6      | 1. 47,8 | 10,68     | 9        |
| 22                                                    | 5. 14. 51,0   | 1. 2,3  | 10,66     | 5. 3. 50,8      | 1. 53,6 | 10,63     | 8        |
| 23                                                    | 5. 15. 53,3   | 0. 56,6 | 10,71     | 5. 1. 57,2      | 1. 59,5 | 10,57     | 7        |
| 24                                                    | 5. 16. 49,9   | 0. 51,1 | 10,76     | 4. 59. 57,7     | 2. 5,3  | 10,51     | 6        |
| 25                                                    | 5. 17. 41,0   | 0. 45,3 | 10,80     | 4. 57. 52,4     | 2. 11,2 | 10,45     | 5        |
| 26                                                    | 5. 18. 26,3   | 0. 39,7 | 10,83     | 4. 55. 41,2     | 2. 16,9 | 10,38     | 4        |
| 27                                                    | 5. 19. 6,0    | 0. 34,0 | 10,87     | 4. 53. 24,3     | 2. 22,7 | 10,31     | 3        |
| 28                                                    | 5. 19. 40,0   | 0. 28,2 | 10,90     | 4. 51. 1,6      | 2. 28,5 | 10,24     | 2        |
| 29                                                    | 5. 20. 8,2    | 0. 22,4 | 10,93     | 4. 48. 33,1     | 2. 34,1 | 10,16     | 1        |
| 30                                                    | 5. 20. 30,6   |         | 10,95     | 4. 45. 59,0     |         | 10,08     | 0        |
|                                                       | +<br>Sig. IX. |         | —         | +<br>Sig. VIII. |         | —         |          |

For any time before 1780, the Secular Variation changes the Sign.



TABLE VI. Equation of the Orbit of the Georgian for 1780, with the Secular Variation.

| ARGUMENT I. (Mean Long.—Aphelion), or mean Anomaly. |             |         |           |             |         |           |          |
|-----------------------------------------------------|-------------|---------|-----------|-------------|---------|-----------|----------|
| Degrees.                                            | Sig. IV.    |         |           | Sig. V.     |         |           | Degrees. |
|                                                     | Equation    | Diff.   | Sec. Var. | Equation    | Diff.   | Sec. Var. |          |
|                                                     | —           |         | +         | —           |         | +         |          |
|                                                     | D. M. S.    | M. S.   | SEC.      | D. M. S.    | M. S.   | SEC.      |          |
| 0                                                   | 4. 45. 59,0 |         | 10,08     | 2. 48. 56,7 |         | 6,10      | 30       |
| 1                                                   | 4. 43. 19,1 | 2. 39,9 | 10,00     | 2. 43. 54,2 | 5. 2,5  | 5,92      | 29       |
| 2                                                   | 4. 40. 33,6 | 2. 45,5 | 9,91      | 2. 38. 48,1 | 5. 6,1  | 5,74      | 28       |
|                                                     |             | 2. 51,0 |           |             | 5. 9,5  |           |          |
| 3                                                   | 4. 37. 42,6 | 2. 56,5 | 9,82      | 2. 33. 38,6 | 5. 12,7 | 5,56      | 27       |
| 4                                                   | 4. 34. 46,1 | 3. 2,1  | 9,72      | 2. 28. 25,9 | 5. 15,9 | 5,37      | 26       |
| 5                                                   | 4. 31. 44,0 | 3. 7,6  | 9,63      | 2. 23. 10,0 | 5. 18,9 | 5,19      | 25       |
|                                                     |             | 3. 13,0 |           |             | 5. 21,9 |           |          |
| 6                                                   | 4. 28. 36,5 | 3. 18,3 | 9,53      | 2. 17. 51,1 | 5. 24,9 | 4,99      | 24       |
| 7                                                   | 4. 25. 23,5 | 3. 23,6 | 9,42      | 2. 12. 29,2 | 5. 27,5 | 4,80      | 23       |
| 8                                                   | 4. 22. 5,2  | 3. 28,9 | 9,31      | 2. 7. 4,3   | 5. 30,0 | 4,61      | 22       |
|                                                     |             | 3. 34,1 |           |             | 5. 32,6 |           |          |
| 9                                                   | 4. 18. 41,6 | 3. 39,1 | 9,20      | 2. 1. 36,8  | 5. 34,9 | 4,41      | 21       |
| 10                                                  | 4. 15. 12,7 | 3. 44,3 | 9,08      | 1. 56. 6,8  | 5. 37,4 | 4,21      | 20       |
| 11                                                  | 4. 11. 38,6 | 3. 49,3 | 8,96      | 1. 50. 34,2 | 5. 39,4 | 4,01      | 19       |
|                                                     |             | 3. 54,3 |           |             | 5. 41,5 |           |          |
| 12                                                  | 4. 7. 59,5  | 3. 59,0 | 8,84      | 1. 44. 59,3 | 5. 43,4 | 3,81      | 18       |
| 13                                                  | 4. 4. 15,2  | 4. 4,0  | 8,72      | 1. 39. 21,9 | 5. 45,1 | 3,61      | 17       |
| 14                                                  | 4. 0. 25,9  | 4. 8,6  | 8,58      | 1. 33. 42,5 | 5. 46,8 | 3,40      | 16       |
|                                                     |             | 4. 13,3 |           |             | 5. 48,4 |           |          |
| 15                                                  | 3. 56. 31,6 | 4. 17,9 | 8,45      | 1. 28. 1,0  | 5. 49,8 | 2,57      | 15       |
| 16                                                  | 3. 52. 32,6 | 4. 22,4 | 8,32      | 1. 22. 17,6 | 5. 51,1 | 2,36      | 14       |
| 17                                                  | 3. 48. 28,6 | 4. 26,8 | 8,18      | 1. 16. 32,5 | 5. 52,2 | 2,15      | 13       |
|                                                     |             | 4. 31,1 |           |             | 5. 53,2 |           |          |
| 18                                                  | 3. 44. 20,0 | 4. 35,4 | 8,03      | 1. 10. 45,7 | 5. 54,3 | 1,94      | 12       |
| 19                                                  | 3. 40. 6,7  | 4. 39,5 | 7,89      | 1. 4. 57,3  | 5. 54,9 | 1,73      | 11       |
| 20                                                  | 3. 35. 48,8 | 4. 43,6 | 7,74      | 0. 59. 7,5  | 5. 55,6 | 1,51      | 10       |
|                                                     |             | 4. 47,6 |           |             | 5. 56,1 |           |          |
| 21                                                  | 3. 31. 26,4 | 4. 51,5 | 7,59      | 0. 53. 16,4 | 5. 56,5 | 0,65      | 9        |
| 22                                                  | 3. 26. 59,6 | 4. 55,3 | 7,44      | 0. 47. 24,2 | 5. 56,7 | 0,43      | 8        |
| 23                                                  | 3. 22. 28,5 | 4. 58,9 | 7,28      | 0. 41. 31,0 | 5. 56,9 | 0,21      | 7        |
|                                                     |             |         |           |             |         | 0,00      |          |
| 24                                                  | 3. 17. 53,1 |         | 7,12      | 0. 35. 36,7 |         |           | 6        |
| 25                                                  | 3. 13. 13,6 |         | 6,96      | 0. 29. 41,8 |         |           | 5        |
| 26                                                  | 3. 8. 30,0  |         | 6,79      | 0. 23. 46,2 |         |           | 4        |
|                                                     |             |         |           |             |         |           |          |
| 27                                                  | 3. 3. 42,4  |         | 6,62      | 0. 17. 50,1 |         |           | 3        |
| 28                                                  | 2. 58. 50,9 |         | 6,45      | 0. 11. 53,6 |         |           | 2        |
| 29                                                  | 2. 53. 55,6 |         | 6,27      | 0. 5. 56,9  |         |           | 1        |
| 30                                                  | 2. 48. 56,7 |         | 6,10      | 0. 0. 0,0   |         |           | 0        |
|                                                     | +           |         | —         | +           |         | —         |          |
|                                                     | Sig. VII.   |         |           | Sig. VI.    |         |           |          |



TABLE VII. EQUATION II.

## ARGUMENT II.

| ARG.<br>II. | Equat.<br>II.<br>SEC. | ARG.<br>II. | Equat.<br>II.<br>SEC. | ARG.<br>II. | Equat.<br>II.<br>SEC. |
|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| 0           | 38,4                  | 310         | 47,7                  | 670         | 3,3                   |
| 10          | 39,0                  | 350         | 46,5                  | 680         | 3,4                   |
| 20          | 39,6                  | 360         | 45,2                  | 690         | 3,5                   |
| 30          | 40,1                  | 370         | 43,9                  | 700         | 3,8                   |
| 40          | 40,7                  | 380         | 42,5                  | 710         | 4,2                   |
| 50          | 41,3                  | 390         | 41,0                  | 720         | 4,8                   |
| 60          | 41,9                  | 400         | 39,4                  | 730         | 5,5                   |
| 70          | 42,5                  | 410         | 37,8                  | 740         | 6,3                   |
| 80          | 43,2                  | 420         | 36,1                  | 750         | 7,2                   |
| 90          | 43,9                  | 430         | 34,4                  | 760         | 8,3                   |
| 100         | 44,7                  | 440         | 32,7                  | 770         | 9,4                   |
| 110         | 45,4                  | 450         | 30,8                  | 780         | 10,7                  |
| 120         | 46,2                  | 460         | 29,0                  | 790         | 12,1                  |
| 130         | 47,0                  | 470         | 27,1                  | 800         | 13,5                  |
| 140         | 47,8                  | 480         | 25,2                  | 810         | 15,0                  |
| 150         | 48,5                  | 490         | 23,4                  | 820         | 16,6                  |
| 160         | 49,2                  | 500         | 21,6                  | 830         | 18,1                  |
| 170         | 49,9                  | 510         | 19,8                  | 840         | 19,7                  |
| 180         | 50,5                  | 520         | 18,1                  | 850         | 21,3                  |
| 190         | 51,1                  | 530         | 16,3                  | 860         | 22,9                  |
| 200         | 51,7                  | 540         | 14,8                  | 870         | 24,5                  |
| 210         | 52,1                  | 550         | 13,3                  | 880         | 26,0                  |
| 220         | 52,4                  | 560         | 11,7                  | 890         | 27,5                  |
| 230         | 52,7                  | 570         | 10,4                  | 900         | 28,9                  |
| 240         | 52,8                  | 580         | 9,2                   | 910         | 30,1                  |
| 250         | 52,8                  | 590         | 8,0                   | 920         | 31,4                  |
| 260         | 52,7                  | 600         | 7,0                   | 930         | 32,6                  |
| 270         | 52,4                  | 610         | 6,1                   | 940         | 33,6                  |
| 280         | 52,1                  | 620         | 5,3                   | 950         | 34,6                  |
| 290         | 51,6                  | 630         | 4,7                   | 960         | 35,4                  |
| 300         | 51,0                  | 640         | 4,0                   | 970         | 36,3                  |
| 310         | 50,3                  | 650         | 3,5                   | 980         | 37,0                  |
| 320         | 49,5                  | 660         | 3,4                   | 990         | 37,7                  |
| 330         | 48,6                  | 670         | 3,3                   | 1000        | 38,4                  |
| 340         | 47,7                  |             |                       |             |                       |

TABLE VIII. EQUATION III.

## ARGUMENT III.

| ARG.<br>III. | Equat.<br>III.<br>SEC. | ARG.<br>III. | Equat.<br>III.<br>SEC. | ARG.<br>III. | Equat.<br>III.<br>SEC. |
|--------------|------------------------|--------------|------------------------|--------------|------------------------|
| 0            | 50,0                   | 340          | 12,7                   | 670          | 88,7                   |
| 10           | 47,3                   | 350          | 14,3                   | 680          | 90,0                   |
| 20           | 44,5                   | 360          | 16,0                   | 690          | 91,1                   |
| 30           | 41,7                   | 370          | 17,8                   | 700          | 92,0                   |
| 40           | 39,0                   | 380          | 19,8                   | 710          | 92,8                   |
| 50           | 36,4                   | 390          | 21,8                   | 720          | 93,4                   |
| 60           | 33,7                   | 400          | 24,0                   | 730          | 93,8                   |
| 70           | 31,2                   | 410          | 26,3                   | 740          | 94,1                   |
| 80           | 28,7                   | 420          | 28,7                   | 750          | 94,2                   |
| 90           | 26,3                   | 430          | 31,2                   | 760          | 94,1                   |
| 100          | 24,0                   | 440          | 33,7                   | 770          | 93,8                   |
| 110          | 21,7                   | 450          | 36,4                   | 780          | 93,4                   |
| 120          | 19,8                   | 460          | 39,0                   | 790          | 92,8                   |
| 130          | 17,8                   | 470          | 41,7                   | 800          | 92,0                   |
| 140          | 16,0                   | 480          | 44,5                   | 810          | 91,1                   |
| 150          | 14,3                   | 490          | 47,3                   | 820          | 90,0                   |
| 160          | 12,7                   | 500          | 50,0                   | 830          | 88,7                   |
| 170          | 11,3                   | 510          | 52,7                   | 840          | 87,3                   |
| 180          | 10,0                   | 520          | 55,5                   | 850          | 85,7                   |
| 190          | 8,9                    | 530          | 58,3                   | 860          | 84,0                   |
| 200          | 8,0                    | 540          | 61,0                   | 870          | 82,2                   |
| 210          | 7,2                    | 550          | 63,6                   | 880          | 80,2                   |
| 220          | 6,6                    | 560          | 66,3                   | 890          | 78,2                   |
| 230          | 6,2                    | 570          | 68,8                   | 900          | 76,0                   |
| 240          | 5,9                    | 580          | 71,3                   | 910          | 73,7                   |
| 250          | 5,8                    | 590          | 73,7                   | 920          | 71,3                   |
| 260          | 5,9                    | 600          | 76,0                   | 930          | 68,8                   |
| 270          | 6,2                    | 610          | 78,2                   | 940          | 66,3                   |
| 280          | 6,6                    | 620          | 80,2                   | 950          | 63,6                   |
| 290          | 7,2                    | 630          | 82,2                   | 960          | 61,0                   |
| 300          | 8,0                    | 640          | 84,0                   | 970          | 58,3                   |
| 310          | 8,9                    | 650          | 85,7                   | 980          | 55,5                   |
| 320          | 10,0                   | 660          | 87,3                   | 990          | 52,7                   |
| 330          | 11,3                   | 670          | 88,7                   | 1000         | 50,0                   |
| 340          | 12,7                   |              |                        |              |                        |



## TABLES OF THE GEORGIAN.

TABLE IX. EQUATION IV.

## ARGUMENT IV.

| ARG.<br>IV. | ARG.<br>IV. | Equation<br>IV. |      | Diff. | ARG.<br>IV. | ARG.<br>IV. | Equation<br>IV. |      | Diff. |
|-------------|-------------|-----------------|------|-------|-------------|-------------|-----------------|------|-------|
|             |             | M.              | S.   |       |             |             | M.              | S.   |       |
| 2500        | 2500        | 5.              | 0,0  | 0,3   | 5900        | 9100        | 1.              | 9,6  | 7,8   |
| 2600        | 2400        | 4.              | 59,7 | 0,9   | 6000        | 9000        | 1.              | 1,8  | 7,4   |
| 2700        | 2300        | 4.              | 58,8 | 1,5   | 6100        | 8900        | 0.              | 54,4 | 7,1   |
| 2800        | 2200        | 4.              | 57,3 | 2,0   | 6200        | 8800        | 0.              | 47,3 | 6,6   |
| 2900        | 2100        | 4.              | 55,3 | 2,7   | 6300        | 8700        | 0.              | 40,7 | 6,2   |
| 3000        | 2000        | 4.              | 52,6 | 3,2   | 6400        | 8600        | 0.              | 34,5 | 5,9   |
| 3100        | 1900        | 4.              | 49,4 | 3,7   | 6500        | 8500        | 0.              | 28,6 | 5,2   |
| 3200        | 1800        | 4.              | 45,7 | 4,3   | 6600        | 8400        | 0.              | 23,4 | 4,8   |
| 3300        | 1700        | 4.              | 41,4 | 4,8   | 6700        | 8300        | 0.              | 18,6 | 4,3   |
| 3400        | 1600        | 4.              | 36,6 | 5,2   | 6800        | 8200        | 0.              | 14,3 | 3,7   |
| 3500        | 1500        | 4.              | 31,4 | 5,9   | 6900        | 8100        | 0.              | 10,6 | 3,2   |
| 3600        | 1400        | 4.              | 25,5 | 6,2   | 7000        | 8000        | 0.              | 7,4  | 2,7   |
| 3700        | 1300        | 4.              | 19,3 | 6,6   | 7100        | 7900        | 0.              | 4,7  | 2,0   |
| 3800        | 1200        | 4.              | 12,7 | 7,1   | 7200        | 7800        | 0.              | 2,7  | 1,5   |
| 3900        | 1100        | 4.              | 5,6  | 7,4   | 7300        | 7700        | 0.              | 1,2  | 0,9   |
| 4000        | 1000        | 3.              | 58,2 | 7,8   | 7400        | 7600        | 0.              | 0,3  | 0,3   |
| 4100        | 900         | 3.              | 50,4 | 8,1   | 7500        | 7500        | 0.              | 0,0  |       |
| 4200        | 800         | 3.              | 42,3 | 8,4   |             |             |                 |      |       |
| 4300        | 700         | 3.              | 33,9 | 8,7   |             |             |                 |      |       |
| 4400        | 600         | 3.              | 25,2 | 8,8   |             |             |                 |      |       |
| 4500        | 500         | 3.              | 16,4 | 9,1   |             |             |                 |      |       |
| 4600        | 400         | 3.              | 7,3  | 9,2   |             |             |                 |      |       |
| 4700        | 300         | 2.              | 58,1 | 9,3   |             |             |                 |      |       |
| 4800        | 200         | 2.              | 48,8 | 9,4   |             |             |                 |      |       |
| 4900        | 100         | 2.              | 39,4 | 9,4   |             |             |                 |      |       |
| 5000        | 0           | 2.              | 30,0 | 9,4   |             |             |                 |      |       |
| 5100        | 9900        | 2.              | 20,6 | 9,4   |             |             |                 |      |       |
| 5200        | 9800        | 2.              | 11,2 | 9,3   |             |             |                 |      |       |
| 5300        | 9700        | 2.              | 1,9  | 9,2   |             |             |                 |      |       |
| 5400        | 9600        | 1.              | 52,7 | 9,1   |             |             |                 |      |       |
| 5500        | 9500        | 1.              | 43,6 | 8,8   |             |             |                 |      |       |
| 5600        | 9400        | 1.              | 34,8 | 8,7   |             |             |                 |      |       |
| 5700        | 9300        | 1.              | 26,1 | 8,4   |             |             |                 |      |       |
| 5800        | 9200        | 1.              | 17,7 | 8,1   |             |             |                 |      |       |
| 5900        | 9100        | 1.              | 9,6  |       |             |             |                 |      |       |



TABLE X. EQUATION V.

| ARGUMENT V. |                     |            |                      |            |                      |
|-------------|---------------------|------------|----------------------|------------|----------------------|
| ARG.<br>V.  | Equat<br>V.<br>SEC. | ARG.<br>V. | Equat.<br>V.<br>SEC. | ARG.<br>V. | Equat.<br>V.<br>SEC. |
| 0           | 3,5                 | 340        | 8,1                  | 670        | 3,4                  |
| 10          | 3,6                 | 350        | 8,1                  | 680        | 3,2                  |
| 20          | 3,8                 | 360        | 8,0                  | 690        | 2,9                  |
| 30          | 4,0                 | 370        | 8,0                  | 700        | 2,5                  |
| 40          | 4,2                 | 380        | 7,9                  | 710        | 2,4                  |
| 50          | 4,4                 | 390        | 7,9                  | 720        | 2,4                  |
| 60          | 4,5                 | 400        | 7,8                  | 730        | 2,3                  |
| 70          | 4,7                 | 410        | 7,7                  | 740        | 2,3                  |
| 80          | 4,9                 | 420        | 7,7                  | 750        | 2,3                  |
| 90          | 5,1                 | 430        | 7,5                  | 760        | 2,3                  |
| 100         | 5,3                 | 440        | 7,4                  | 770        | 2,2                  |
| 110         | 5,5                 | 450        | 7,3                  | 780        | 2,1                  |
| 120         | 5,7                 | 460        | 7,2                  | 790        | 2,1                  |
| 130         | 5,9                 | 470        | 7,0                  | 800        | 2,0                  |
| 140         | 6,1                 | 480        | 6,9                  | 810        | 2,0                  |
| 150         | 6,3                 | 490        | 6,7                  | 820        | 2,0                  |
| 160         | 6,4                 | 500        | 6,5                  | 830        | 1,9                  |
| 170         | 6,6                 | 510        | 6,4                  | 840        | 1,9                  |
| 180         | 6,8                 | 520        | 6,2                  | 850        | 1,9                  |
| 190         | 7,1                 | 530        | 6,0                  | 860        | 2,0                  |
| 200         | 7,5                 | 540        | 5,8                  | 870        | 2,1                  |
| 210         | 7,6                 | 550        | 5,6                  | 880        | 2,1                  |
| 220         | 7,6                 | 560        | 5,5                  | 890        | 2,1                  |
| 230         | 7,6                 | 570        | 5,3                  | 900        | 2,2                  |
| 240         | 7,7                 | 580        | 5,1                  | 910        | 2,3                  |
| 250         | 7,7                 | 590        | 4,9                  | 920        | 2,4                  |
| 260         | 7,7                 | 600        | 4,7                  | 930        | 2,5                  |
| 270         | 7,8                 | 610        | 4,5                  | 940        | 2,6                  |
| 280         | 7,9                 | 620        | 4,3                  | 950        | 2,7                  |
| 290         | 7,9                 | 630        | 4,1                  | 960        | 2,8                  |
| 300         | 8,0                 | 640        | 3,9                  | 970        | 3,0                  |
| 310         | 8,0                 | 650        | 3,7                  | 980        | 3,1                  |
| 320         | 8,1                 | 660        | 3,6                  | 990        | 3,2                  |
| 330         | 8,1                 | 670        | 3,4                  | 1000       | 3,5                  |
| 340         | 8,1                 |            |                      |            |                      |



TABLE XI. EQUATION VI.

| ARGUMENT VI. |                 |       |             |                 |       |             |                 |       |
|--------------|-----------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|
| ARG.<br>VI.  | Equation<br>VI. | Diff. | ARG.<br>VI. | Equation<br>VI. | Diff. | ARG.<br>VI. | Equation<br>VI. | Diff. |
|              | M. S.           | SEC.  |             | M. S.           | SEC.  |             | M. S.           | SEC.  |
| 0            | 4. 33,1         | 0,6   | 3400        | 1. 4,1          | 6,7   | 6700        | 1. 20,6         | 7,6   |
| 100          | 4. 32,5         | 1,1   | 3500        | 0. 57,4         | 6,4   | 6800        | 1. 28,2         | 7,8   |
| 200          | 4. 31,4         | 1,7   | 3600        | 0. 51,0         | 6,1   | 6900        | 1. 36,0         | 8,0   |
| 300          | 4. 29,7         | 2,1   | 3700        | 0. 44,9         | 5,7   | 7000        | 1. 44,0         | 8,1   |
| 400          | 4. 27,6         | 2,7   | 3800        | 0. 39,2         | 5,2   | 7100        | 1. 52,1         | 8,3   |
| 500          | 4. 24,9         | 3,1   | 3900        | 0. 34,0         | 4,9   | 7200        | 2. 0,4          | 8,3   |
| 600          | 4. 21,8         | 3,6   | 4000        | 0. 29,1         | 4,4   | 7300        | 2. 8,7          | 8,4   |
| 700          | 4. 18,2         | 4,2   | 4100        | 0. 24,7         | 4,0   | 7400        | 2. 17,1         | 8,3   |
| 800          | 4. 14,0         | 4,5   | 4200        | 0. 20,7         | 3,5   | 7500        | 2. 25,4         | 8,4   |
| 900          | 4. 09,5         | 5,0   | 4300        | 0. 17,2         | 3,0   | 7600        | 2. 33,8         | 8,3   |
| 1000         | 4. 04,5         | 5,4   | 4400        | 0. 14,2         | 2,5   | 7700        | 2. 42,1         | 8,2   |
| 1100         | 3. 59,1         | 5,8   | 4500        | 0. 11,7         | 2,0   | 7800        | 2. 50,3         | 8,1   |
| 1200         | 3. 53,3         | 6,1   | 4600        | 0. 9,7          | 1,5   | 7900        | 2. 58,4         | 7,9   |
| 1300         | 3. 47,2         | 6,5   | 4700        | 0. 8,2          | 1,0   | 8000        | 3. 6,3          | 7,7   |
| 1400         | 3. 40,7         | 6,8   | 4800        | 0. 7,2          | 0,4   | 8100        | 3. 14,0         | 7,6   |
| 1500         | 3. 33,9         | 7,1   | 4900        | 0. 6,8          | 0,1   | 8200        | 3. 21,6         | 7,3   |
| 1600         | 3. 26,8         | 7,4   | 5000        | 0. 6,9          | 0,6   | 8300        | 3. 28,9         | 7,0   |
| 1700         | 3. 19,4         | 7,6   | 5100        | 0. 7,5          | 1,1   | 8400        | 3. 35,9         | 6,7   |
| 1800         | 3. 11,8         | 7,8   | 5200        | 0. 8,6          | 1,7   | 8500        | 3. 42,6         | 6,4   |
| 1900         | 3. 4,0          | 8,0   | 5300        | 0. 10,3         | 2,1   | 8600        | 3. 49,0         | 6,1   |
| 2000         | 2. 56,0         | 8,1   | 5400        | 0. 12,4         | 2,7   | 8700        | 3. 55,1         | 5,7   |
| 2100         | 2. 47,9         | 8,3   | 5500        | 0. 15,1         | 3,1   | 8800        | 4. 0,8          | 5,2   |
| 2200         | 2. 39,6         | 8,3   | 5600        | 0. 18,2         | 3,6   | 8900        | 4. 6,0          | 4,9   |
| 2300         | 2. 31,3         | 8,4   | 5700        | 0. 21,8         | 4,2   | 9000        | 4. 10,9         | 4,4   |
| 2400         | 2. 22,9         | 8,3   | 5800        | 0. 26,0         | 4,5   | 9100        | 4. 15,3         | 4,0   |
| 2500         | 2. 14,6         | 8,4   | 5900        | 0. 30,5         | 5,0   | 9200        | 4. 19,3         | 3,5   |
| 2600         | 2. 6,2          | 8,3   | 6000        | 0. 35,5         | 5,4   | 9300        | 4. 22,8         | 3,0   |
| 2700         | 1. 57,9         | 8,2   | 6100        | 0. 40,9         | 5,8   | 9400        | 4. 25,8         | 2,5   |
| 2800         | 1. 49,7         | 8,1   | 6200        | 0. 46,7         | 6,1   | 9500        | 4. 28,3         | 2,0   |
| 2900         | 1. 41,6         | 7,9   | 6300        | 0. 52,8         | 6,5   | 9600        | 4. 30,3         | 1,5   |
| 3000         | 1. 33,7         | 7,7   | 6400        | 0. 59,3         | 6,8   | 9700        | 4. 31,8         | 1,0   |
| 3100         | 1. 26,0         | 7,6   | 6500        | 1. 6,1          | 7,1   | 9800        | 4. 32,8         | 0,4   |
| 3200         | 1. 18,4         | 7,3   | 6600        | 1. 13,2         | 7,4   | 9900        | 4. 33,2         | 0,1   |
| 3300         | 1. 11,1         | 7,0   | 6700        | 1. 20,6         |       | 10000       | 4. 33,1         |       |
| 3400         | 1. 4,1          |       |             |                 |       |             |                 |       |



TABLE XII. EQUATION VII.

ARGUMENT VII.

| ARG.<br>VII. | Equation<br>VII.<br>M. S. | ARG.<br>VII. | Equation<br>VII.<br>M. S. | ARG.<br>VII. | Equation<br>VII.<br>M. S. |
|--------------|---------------------------|--------------|---------------------------|--------------|---------------------------|
| 0            | I. 0,0                    | 340          | I. 44,5                   | 670          | O. 13,8                   |
| 10           | I. 3,3                    | 350          | I. 42,7                   | 680          | O. 12,4                   |
| 20           | I. 6,6                    | 360          | I. 40,7                   | 690          | O. 11,1                   |
| 30           | I. 9,7                    | 370          | I. 38,5                   | 700          | O. 10,0                   |
| 40           | I. 12,9                   | 380          | I. 36,1                   | 710          | O. 9,0                    |
| 50           | I. 16,1                   | 390          | I. 33,6                   | 720          | O. 8,3                    |
| 60           | I. 19,2                   | 400          | I. 31,0                   | 730          | O. 7,9                    |
| 70           | I. 22,3                   | 410          | I. 28,3                   | 740          | O. 7,6                    |
| 80           | I. 25,1                   | 420          | I. 25,5                   | 750          | O. 7,5                    |
| 90           | I. 27,9                   | 430          | I. 22,5                   | 760          | O. 7,6                    |
| 100          | I. 30,6                   | 440          | I. 19,4                   | 770          | O. 7,9                    |
| 110          | I. 33,2                   | 450          | I. 16,3                   | 780          | O. 8,5                    |
| 120          | I. 35,7                   | 460          | I. 13,2                   | 790          | O. 9,2                    |
| 130          | I. 38,1                   | 470          | I. 9,9                    | 800          | O. 10,2                   |
| 140          | I. 40,2                   | 480          | I. 6,6                    | 810          | O. 11,3                   |
| 150          | I. 42,3                   | 490          | I. 3,3                    | 820          | O. 12,6                   |
| 160          | I. 44,1                   | 500          | I. 0,0                    | 830          | O. 14,2                   |
| 170          | I. 45,8                   | 510          | O. 56,7                   | 840          | O. 15,9                   |
| 180          | I. 47,4                   | 520          | O. 53,4                   | 850          | O. 17,7                   |
| 190          | I. 48,7                   | 530          | O. 50,1                   | 860          | O. 19,7                   |
| 200          | I. 49,8                   | 540          | O. 46,8                   | 870          | O. 21,9                   |
| 210          | I. 50,8                   | 550          | O. 43,7                   | 880          | O. 24,3                   |
| 220          | I. 51,5                   | 560          | O. 40,6                   | 890          | O. 26,8                   |
| 230          | I. 52,1                   | 570          | O. 37,5                   | 900          | O. 29,4                   |
| 240          | I. 52,4                   | 580          | O. 34,5                   | 910          | O. 32,1                   |
| 250          | I. 52,5                   | 590          | O. 31,7                   | 920          | O. 34,9                   |
| 260          | I. 52,4                   | 600          | O. 29,0                   | 930          | O. 37,7                   |
| 270          | I. 52,1                   | 610          | O. 26,4                   | 940          | O. 40,8                   |
| 280          | I. 51,7                   | 620          | O. 23,9                   | 950          | O. 43,9                   |
| 290          | I. 51,0                   | 630          | O. 21,5                   | 960          | O. 47,0                   |
| 300          | I. 50,0                   | 640          | O. 19,4                   | 970          | O. 50,3                   |
| 310          | I. 48,9                   | 650          | O. 17,3                   | 980          | O. 53,4                   |
| 320          | I. 47,6                   | 660          | O. 15,5                   | 990          | O. 56,7                   |
| 330          | I. 46,2                   | 670          | O. 13,8                   | 1000         | I. 0,0                    |
| 340          | I. 44,5                   |              |                           |              |                           |

TABLE XIII. EQUAT. VIII.

ARGUMENT VIII.

| ARG.<br>VIII. | ARG.<br>VIII. | Equat.<br>VIII.<br>SEC. | ARG.<br>VIII. | Equat.<br>VIII.<br>SEC. |
|---------------|---------------|-------------------------|---------------|-------------------------|
| 250           | 250           | 1,3                     | 590           | 7,0                     |
| 260           | 240           | 1,3                     | 600           | 7,2                     |
| 270           | 230           | 1,3                     | 610           | 7,4                     |
| 280           | 220           | 1,4                     | 620           | 7,5                     |
| 290           | 210           | 1,4                     | 630           | 7,7                     |
| 300           | 200           | 1,5                     | 640           | 7,8                     |
| 310           | 190           | 1,6                     | 650           | 8,0                     |
| 320           | 180           | 1,7                     | 660           | 8,1                     |
| 330           | 170           | 1,8                     | 670           | 8,2                     |
| 340           | 160           | 1,9                     | 680           | 8,3                     |
| 350           | 150           | 2,0                     | 690           | 8,4                     |
| 360           | 140           | 2,2                     | 700           | 8,5                     |
| 370           | 130           | 2,3                     | 710           | 8,6                     |
| 380           | 120           | 2,5                     | 720           | 8,6                     |
| 390           | 110           | 2,6                     | 730           | 8,7                     |
| 400           | 100           | 2,8                     | 740           | 8,7                     |
| 410           | 90            | 3,0                     | 750           | 8,7                     |
| 420           | 80            | 3,2                     | 760           | 8,7                     |
| 430           | 70            | 3,4                     | 770           | 8,7                     |
| 440           | 60            | 3,6                     | 780           | 8,6                     |
| 450           | 50            | 3,9                     | 790           | 8,6                     |
| 460           | 40            | 4,1                     | 800           | 8,5                     |
| 470           | 30            | 4,3                     | 810           | 8,4                     |
| 480           | 20            | 4,5                     | 820           | 8,3                     |
| 490           | 10            | 4,8                     | 830           | 8,2                     |
| 500           | 0             | 5,0                     | 840           | 8,1                     |
| 510           | 990           | 5,2                     | 850           | 8,0                     |
| 520           | 980           | 5,5                     | 860           | 7,8                     |
| 530           | 970           | 5,7                     | 870           | 7,7                     |
| 540           | 960           | 5,9                     | 880           | 7,5                     |
| 550           | 950           | 6,1                     | 890           | 7,4                     |
| 560           | 940           | 6,4                     | 900           | 7,2                     |
| 570           | 930           | 6,6                     | 910           | 7,0                     |
| 580           | 920           | 6,8                     |               |                         |
| 590           | 910           | 7,0                     |               |                         |



TABLE XIV. Radius Vector for 1780, with the Secular Variation.

ARGUMENT I. *The mean Anomaly.*

| Degrees. | Sig. O.    |       |                   | Sig. I.    |       |                   | Sig. II.   |       |                   | Degrees. |
|----------|------------|-------|-------------------|------------|-------|-------------------|------------|-------|-------------------|----------|
|          | Rad. Vect. | Diff. | Secular Variation | Rad. Vect. | Diff. | Secular Variation | Rad. Vect. | Diff. | Secular Variation |          |
|          |            |       | —<br>0,0          |            |       | —<br>0,0          |            |       | —<br>0,0          |          |
| 0        | 20,0722    |       | 005,2             | 19,9620    |       | 004,5             | 19,6547    |       | 002,9             | 30       |
| 1        | 20,0721    | 1     | 005,2             | 19,9547    | 73    | 004,5             | 19,6417    | 130   | 002,9             | 29       |
| 2        | 20,0717    | 4     | 005,2             | 19,9472    | 75    | 004,5             | 19,6286    | 131   | 002,8             | 28       |
|          |            | 6     |                   |            | 78    |                   |            | 133   |                   |          |
| 3        | 20,0711    | 9     | 005,2             | 19,9394    | 80    | 004,4             | 19,6153    | 134   | 002,7             | 27       |
| 4        | 20,0702    | 11    | 005,2             | 19,9314    | 82    | 004,4             | 19,6019    | 135   | 002,6             | 26       |
| 5        | 20,0691    |       | 005,1             | 19,9232    |       | 004,3             | 19,5884    |       | 002,5             | 25       |
|          |            | 14    |                   |            | 84    |                   |            | 136   |                   |          |
| 6        | 20,0677    | 16    | 005,1             | 19,9148    | 86    | 004,3             | 19,5748    | 138   | 002,5             | 24       |
| 7        | 20,0661    | 18    | 005,1             | 19,9062    | 89    | 004,3             | 19,5610    | 138   | 002,4             | 23       |
| 8        | 20,0643    |       | 005,1             | 19,8973    |       | 004,2             | 19,5470    | 140   | 002,4             | 22       |
|          |            | 21    |                   |            | 91    |                   |            | 140   |                   |          |
| 9        | 20,0622    | 24    | 005,1             | 19,8882    | 92    | 004,2             | 19,5330    | 141   | 002,3             | 21       |
| 10       | 20,0598    | 26    | 005,0             | 19,8790    | 94    | 004,1             | 19,5189    | 142   | 002,2             | 20       |
| 11       | 20,0572    |       | 005,0             | 19,8696    |       | 004,1             | 19,5047    |       | 002,2             | 19       |
|          |            | 29    |                   |            | 97    |                   |            | 143   |                   |          |
| 12       | 20,0543    | 31    | 005,0             | 19,8599    | 98    | 004,0             | 19,4904    | 145   | 002,1             | 18       |
| 13       | 20,0512    | 33    | 005,0             | 19,8501    | 101   | 004,0             | 19,4759    | 146   | 002,0             | 17       |
| 14       | 20,0479    |       | 005,0             | 19,8400    |       | 003,9             | 19,4613    |       | 001,9             | 16       |
|          |            | 36    |                   |            | 102   |                   |            | 146   |                   |          |
| 15       | 20,0443    | 39    | 005,0             | 19,8298    | 105   | 003,8             | 19,4467    | 148   | 001,8             | 15       |
| 16       | 20,0404    | 40    | 005,0             | 19,8193    | 106   | 003,8             | 19,4319    | 148   | 001,7             | 14       |
| 17       | 20,0364    |       | 005,0             | 19,8087    |       | 003,8             | 19,4171    |       | 001,6             | 13       |
|          |            | 43    |                   |            | 108   |                   |            | 149   |                   |          |
| 18       | 20,0321    | 45    | 005,0             | 19,7979    | 110   | 003,7             | 19,4022    | 150   | 001,5             | 12       |
| 19       | 20,0276    | 48    | 005,0             | 19,7869    | 112   | 003,6             | 19,3872    | 150   | 001,4             | 11       |
| 20       | 20,0228    |       | 004,9             | 19,7757    |       | 003,5             | 19,3722    |       | 001,3             | 10       |
|          |            | 50    |                   |            | 114   |                   |            | 152   |                   |          |
| 21       | 20,0178    | 53    | 004,9             | 19,7643    | 115   | 003,5             | 19,3570    | 152   | 001,3             | 9        |
| 22       | 20,0125    | 56    | 004,8             | 19,7528    | 117   | 003,4             | 19,3418    | 152   | 001,2             | 8        |
| 23       | 20,0069    |       | 004,8             | 19,7411    |       | 003,3             | 19,3266    |       | 001,1             | 7        |
|          |            | 57    |                   |            | 118   |                   |            | 153   |                   |          |
| 24       | 20,0012    | 59    | 004,8             | 19,7293    | 121   | 003,2             | 19,3113    | 154   | 001,0             | 6        |
| 25       | 19,9953    | 62    | 004,7             | 19,7172    | 122   | 003,1             | 19,2959    | 155   | 000,9             | 5        |
| 26       | 19,9891    |       | 004,7             | 19,7050    |       | 003,1             | 19,2804    |       | 000,9             | 4        |
|          |            | 64    |                   |            | 124   |                   |            | 154   |                   |          |
| 27       | 19,9827    | 67    | 004,6             | 19,6926    | 125   | 003,1             | 19,2650    | 155   | 000,8             | 3        |
| 28       | 19,9760    | 69    | 004,6             | 19,6801    | 126   | 003,0             | 19,2495    | 155   | 000,7             | 2        |
| 29       | 19,9691    | 71    | 004,6             | 19,6675    | 128   | 003,0             | 19,2340    | 156   | 000,6             | 1        |
| 30       | 19,9620    |       | 004,5             | 19,6547    |       | 002,9             | 19,2184    |       | 000,5             | 0        |
|          | Sig. XI.   |       | 0,0<br>—          | Sig. X.    |       | 0,0<br>—          | Sig. IX.   |       | 0,0<br>—          |          |



TABLE XIV. Radius Vector for 1780, with the Secular Variation.

| ARGUMENT I. <i>The mean Anomaly.</i> |            |       |                    |            |       |                    |            |       |                    |          |
|--------------------------------------|------------|-------|--------------------|------------|-------|--------------------|------------|-------|--------------------|----------|
| Degrees.                             | Sig. III.  |       |                    | Sig. IV.   |       |                    | Sig. V.    |       |                    | Degrees. |
|                                      | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. | Rad. Vect. | Diff. | Secular Variation. |          |
|                                      |            |       | -<br>0,0           |            |       | +<br>0,0           |            |       | +<br>0,0           |          |
| 0                                    | 19,2184    |       | 000,5              | 18,7613    |       | 002,2              | 18,4122    |       | 004,3              | 30       |
| 1                                    | 19,2028    | 156   | 000,3              | 18,7472    | 141   | 002,2              | 18,4038    | 83    | 004,3              | 29       |
| 2                                    | 19,1872    | 156   | 000,1              | 18,7332    | 140   | 002,3              | 18,3957    | 81    | 004,4              | 28       |
|                                      |            | 156   |                    |            | 138   |                    |            | 78    |                    |          |
| 3                                    | 19,1716    | 157   | 000,0              | 18,7194    | 137   | 002,4              | 18,3879    | 76    | 004,4              | 27       |
| 4                                    | 19,1559    | 156   | 000,0              | 18,7057    | 136   | 002,5              | 18,3803    | 74    | 004,4              | 26       |
| 5                                    | 19,1403    | 157   | 000,1              | 18,6921    | 134   | 002,6              | 18,3729    | 70    | 004,5              | 25       |
|                                      |            | 156   |                    |            | 132   |                    |            | 68    |                    |          |
| 6                                    | 19,1246    | 156   | 000,2              | 18,6787    | 132   | 002,6              | 18,3659    | 68    | 004,5              | 24       |
| 7                                    | 19,1090    | 156   | 000,2              | 18,6655    | 131   | 002,7              | 18,3591    | 65    | 004,5              | 23       |
| 8                                    | 19,0934    | 157   | 000,3              | 18,6524    | 130   | 002,8              | 18,3526    | 63    | 004,6              | 22       |
|                                      |            | 156   |                    |            | 128   |                    |            | 60    |                    |          |
| 9                                    | 19,0777    | 156   | 000,3              | 18,6394    | 128   | 002,9              | 18,3463    | 60    | 004,6              | 21       |
| 10                                   | 19,0621    | 155   | 000,4              | 18,6266    | 126   | 003,0              | 18,3403    | 57    | 004,7              | 20       |
| 11                                   | 19,0466    | 156   | 000,5              | 18,6140    | 124   | 003,0              | 18,3346    | 54    | 004,7              | 19       |
|                                      |            | 155   |                    |            | 123   |                    |            | 52    |                    |          |
| 12                                   | 19,0310    | 155   | 000,6              | 18,6016    | 123   | 003,1              | 18,3292    | 52    | 004,7              | 18       |
| 13                                   | 19,0155    | 155   | 000,7              | 18,5893    | 121   | 003,2              | 18,3240    | 48    | 004,8              | 17       |
| 14                                   | 19,0000    | 154   | 000,8              | 18,5772    | 119   | 003,3              | 18,3192    | 45    | 004,8              | 16       |
|                                      |            | 155   |                    |            | 117   |                    |            | 44    |                    |          |
| 15                                   | 18,9846    | 155   | 000,9              | 18,5653    | 117   | 003,4              | 18,3147    | 44    | 004,9              | 15       |
| 16                                   | 18,9691    | 153   | 000,9              | 18,5536    | 115   | 003,5              | 18,3103    | 40    | 004,9              | 14       |
| 17                                   | 18,9538    | 153   | 001,0              | 18,5421    | 113   | 003,5              | 18,3063    | 37    | 004,9              | 13       |
|                                      |            | 152   |                    |            | 111   |                    |            | 34    |                    |          |
| 18                                   | 18,9385    | 152   | 001,1              | 18,5308    | 111   | 003,6              | 18,3026    | 34    | 004,9              | 12       |
| 19                                   | 18,9233    | 151   | 001,2              | 18,5197    | 109   | 003,6              | 18,2992    | 31    | 004,9              | 11       |
| 20                                   | 18,9082    | 152   | 001,3              | 18,5088    | 107   | 003,7              | 18,2961    | 29    | 005,0              | 10       |
|                                      |            | 150   |                    |            | 104   |                    |            | 25    |                    |          |
| 21                                   | 18,8930    | 149   | 001,4              | 18,4981    | 103   | 003,8              | 18,2932    | 23    | 005,0              | 9        |
| 22                                   | 18,8780    | 148   | 001,5              | 18,4877    | 100   | 003,9              | 18,2907    | 19    | 005,0              | 8        |
| 23                                   | 18,8631    | 148   | 001,6              | 18,4774    | 98    |                    | 18,2884    | 16    | 005,0              | 7        |
|                                      |            | 147   |                    |            | 96    |                    |            | 14    |                    |          |
| 24                                   | 18,8483    | 146   | 001,7              | 18,4674    | 93    | 003,9              | 18,2865    | 11    | 005,0              | 6        |
| 25                                   | 18,8335    | 144   | 001,7              | 18,4576    | 91    | 004,0              | 18,2849    | 7     | 005,1              | 5        |
| 26                                   | 18,8188    | 143   | 001,8              | 18,4480    | 88    | 004,0              | 18,2835    | 4     | 005,1              | 4        |
|                                      |            | 142   |                    |            | 86    |                    |            | 2     |                    |          |
| 27                                   | 18,8042    |       | 001,9              | 18,4387    |       | 004,1              | 18,2824    |       | 005,1              | 3        |
| 28                                   | 18,7898    |       | 002,0              | 18,4296    |       | 004,1              | 18,2817    |       | 005,1              | 2        |
| 29                                   | 18,7755    |       | 002,1              | 18,4208    |       | 004,2              | 18,2813    |       | 005,1              | 1        |
| 30                                   | 18,7613    |       | 002,2              | 18,4122    |       | 004,3              | 18,2811    |       | 005,1              | 0        |
|                                      | Sig. VIII. |       | 0,0<br>+           | Sig. VII.  |       | 0,0<br>+           | Sig. VI.   |       | 0,0<br>+           |          |



TABLE XV. Equations of the Radius Vector.

| ARGUMENT. |              |               |              |               |      |      |              |               |      |
|-----------|--------------|---------------|--------------|---------------|------|------|--------------|---------------|------|
| ARG.      | Equation II. | Equation III. | Equation IV. | Equation VII. | ARG. | ARG. | Equation II. | Equation III. | ARG. |
| 0         | 0,0070       | 0,0032        | 0,0000       | 0,0098        | 1000 | 350  | 0,0009       | 0,0005        | 650  |
| 10        | 0,0070       | 0,0032        | 0,0000       | 0,0098        | 990  | 360  | 0,0007       | 0,0005        | 640  |
| 20        | 0,0070       | 0,0032        | 0,0000       | 0,0098        | 980  | 370  | 0,0006       | 0,0004        | 630  |
| 30        | 0,0069       | 0,0032        | 0,0001       | 0,0097        | 970  | 380  | 0,0005       | 0,0003        | 620  |
| 40        | 0,0069       | 0,0032        | 0,0002       | 0,0096        | 960  | 390  | 0,0004       | 0,0003        | 610  |
| 50        | 0,0068       | 0,0032        | 0,0003       | 0,0096        | 950  | 400  | 0,0003       | 0,0002        | 600  |
| 60        | 0,0067       | 0,0031        | 0,0004       | 0,0095        | 940  | 410  | 0,0002       | 0,0002        | 590  |
| 70        | 0,0066       | 0,0031        | 0,0006       | 0,0093        | 930  | 420  | 0,0001       | 0,0001        | 580  |
| 80        | 0,0065       | 0,0031        | 0,0007       | 0,0092        | 920  | 430  | 0,0001       | 0,0001        | 570  |
| 90        | 0,0063       | 0,0030        | 0,0009       | 0,0090        | 910  | 440  | 0,0001       | 0,0001        | 560  |
| 100       | 0,0061       | 0,0030        | 0,0011       | 0,0089        | 900  | 450  | 0,0000       | 0,0000        | 550  |
| 110       | 0,0060       | 0,0029        | 0,0014       | 0,0087        | 890  | 460  | 0,0000       | 0,0000        | 540  |
| 120       | 0,0058       | 0,0029        | 0,0017       | 0,0085        | 880  | 470  | 0,0000       | 0,0000        | 530  |
| 130       | 0,0056       | 0,0028        | 0,0019       | 0,0082        | 870  | 480  | 0,0000       | 0,0000        | 520  |
| 140       | 0,0053       | 0,0027        | 0,0022       | 0,0080        | 860  | 490  | 0,0000       | 0,0000        | 510  |
| 150       | 0,0051       | 0,0027        | 0,0025       | 0,0078        | 850  | 500  | 0,0000       | 0,0000        | 500  |
| 160       | 0,0049       | 0,0026        | 0,0028       | 0,0075        | 840  | ARG. | Equation IV. | Equation VII. | ARG. |
| 170       | 0,0046       | 0,0025        | 0,0032       | 0,0073        | 830  |      |              |               |      |
| 180       | 0,0044       | 0,0024        | 0,0035       | 0,0070        | 820  | 350  | 0,0025       | 0,0020        | 650  |
| 190       | 0,0042       | 0,0023        | 0,0039       | 0,0067        | 810  | 360  | 0,0022       | 0,0018        | 640  |
| 200       | 0,0039       | 0,0022        | 0,0043       | 0,0064        | 800  | 370  | 0,0019       | 0,0016        | 630  |
| 210       | 0,0037       | 0,0021        | 0,0046       | 0,0061        | 790  | 380  | 0,0017       | 0,0013        | 620  |
| 220       | 0,0034       | 0,0020        | 0,0050       | 0,0058        | 780  | 390  | 0,0014       | 0,0011        | 610  |
| 230       | 0,0030       | 0,0019        | 0,0054       | 0,0054        | 770  | 400  | 0,0011       | 0,0009        | 600  |
| 240       | 0,0028       | 0,0018        | 0,0058       | 0,0052        | 760  | 410  | 0,0009       | 0,0008        | 590  |
| 250       | 0,0026       | 0,0016        | 0,0062       | 0,0049        | 750  | 420  | 0,0007       | 0,0006        | 580  |
| 260       | 0,0024       | 0,0014        | 0,0058       | 0,0046        | 740  | 430  | 0,0006       | 0,0005        | 570  |
| 270       | 0,0022       | 0,0013        | 0,0054       | 0,0043        | 730  | 440  | 0,0004       | 0,0004        | 560  |
| 280       | 0,0020       | 0,0012        | 0,0050       | 0,0040        | 720  | 450  | 0,0003       | 0,0003        | 550  |
| 290       | 0,0018       | 0,0011        | 0,0046       | 0,0037        | 710  | 460  | 0,0002       | 0,0002        | 540  |
| 300       | 0,0016       | 0,0010        | 0,0043       | 0,0034        | 700  | 470  | 0,0001       | 0,0001        | 530  |
| 310       | 0,0015       | 0,0009        | 0,0039       | 0,0031        | 690  | 480  | 0,0000       | 0,0000        | 520  |
| 320       | 0,0013       | 0,0008        | 0,0035       | 0,0028        | 680  | 490  | 0,0000       | 0,0000        | 510  |
| 330       | 0,0012       | 0,0007        | 0,0032       | 0,0025        | 670  | 500  | 0,0000       | 0,0000        | 500  |
| 340       | 0,0010       | 0,0006        | 0,0028       | 0,0023        | 660  |      |              |               |      |

For Equation IV. take away the last Cypher of the Argument.



TABLE XVI. Heliocentric Latitude for 1780, with the Secular Variation.

ARGUMENT IX. *Longitude of the Georgian— that of the Node.*

| Degrees. | Latitude.   |         |                   | Latitude.    |         |                   | Latitude.     |         |                   | Degrees. |
|----------|-------------|---------|-------------------|--------------|---------|-------------------|---------------|---------|-------------------|----------|
|          | Sig. O. N.  | Differ. | Sec. Var. for 10" | Sig. I. N.   | Differ. | Sec. Var. for 10" | Sig. II. N.   | Differ. | Sec. Var. for 10" |          |
|          | Sig. VI. S. |         |                   | Sig. VII. S. |         |                   | Sig. VIII. S. |         |                   |          |
|          | M. S.       | SEC.    | SEC.              | M. S.        | SEC.    | SEC.              | M. S.         | SEC.    | SEC.              |          |
| 0        | 0. 0,0      | 48,4    | 0,0               | 23. 8,0      | 41,7    | 5,0               | 40. 4,1       | 23,8    | 8,7               | 30       |
| 1        | 0. 48,4     | 48,5    | 0,2               | 23. 49,7     | 41,4    | 5,2               | 40. 27,9      | 23,2    | 8,7               | 29       |
| 2        | 1. 36,9     | 48,4    | 0,3               | 24. 31,1     | 40,8    | 5,3               | 40. 51,1      | 22,3    | 8,8               | 28       |
| 3        | 2. 25,3     | 48,4    | 0,5               | 25. 11,9     | 40,4    | 5,4               | 41. 13,4      | 21,6    | 8,9               | 27       |
| 4        | 3. 13,7     | 48,2    | 0,7               | 25. 52,3     | 40,0    | 5,6               | 41. 35,0      | 20,9    | 9,0               | 26       |
| 5        | 4. 1,9      | 48,2    | 0,9               | 26. 32,3     | 39,4    | 5,7               | 41. 55,9      | 20,1    | 9,1               | 25       |
| 6        | 4. 50,1     | 48,2    | 1,0               | 27. 11,7     | 38,9    | 5,9               | 42. 16,0      | 19,3    | 9,1               | 24       |
| 7        | 5. 38,3     | 48,0    | 1,2               | 27. 50,6     | 38,5    | 6,0               | 42. 35,3      | 18,6    | 9,2               | 23       |
| 8        | 6. 26,3     | 47,9    | 1,4               | 28. 29,1     | 37,9    | 6,2               | 42. 53,9      | 17,7    | 9,3               | 22       |
| 9        | 7. 14,2     | 47,8    | 1,6               | 29. 7,0      | 37,4    | 6,3               | 43. 11,6      | 17,0    | 9,3               | 21       |
| 10       | 8. 2,0      | 47,7    | 1,7               | 29. 44,4     | 36,8    | 6,4               | 43. 28,6      | 16,2    | 9,4               | 20       |
| 11       | 8. 49,7     | 47,5    | 1,9               | 30. 21,2     | 36,3    | 6,6               | 43. 44,8      | 15,3    | 9,5               | 19       |
| 12       | 9. 37,2     | 47,3    | 2,1               | 30. 57,5     | 35,7    | 6,7               | 44. 0,1       | 14,6    | 9,5               | 18       |
| 13       | 10. 24,5    | 47,1    | 2,2               | 31. 33,2     | 35,2    | 6,8               | 44. 14,7      | 13,8    | 9,6               | 17       |
| 14       | 11. 11,6    | 46,8    | 2,4               | 32. 8,4      | 34,5    | 6,9               | 44. 28,5      | 12,9    | 9,6               | 16       |
| 15       | 11. 58,4    | 46,7    | 2,6               | 32. 42,9     | 34,0    | 7,1               | 44. 41,4      | 12,1    | 9,7               | 15       |
| 16       | 12. 45,1    | 46,5    | 2,8               | 33. 16,9     | 33,3    | 7,2               | 44. 53,5      | 11,3    | 9,7               | 14       |
| 17       | 13. 31,6    | 46,2    | 2,9               | 33. 50,2     | 32,8    | 7,3               | 45. 4,8       | 10,5    | 9,7               | 13       |
| 18       | 14. 17,8    | 46,0    | 3,1               | 34. 23,0     | 32,1    | 7,4               | 45. 15,3      | 9,7     | 9,8               | 12       |
| 19       | 15. 3,8     | 45,6    | 3,3               | 34. 55,1     | 31,4    | 7,5               | 45. 25,0      | 8,8     | 9,8               | 11       |
| 20       | 15. 49,4    | 45,4    | 3,4               | 35. 26,5     | 30,8    | 7,7               | 45. 33,8      | 8,0     | 9,8               | 10       |
| 21       | 16. 34,8    | 45,1    | 3,6               | 35. 57,3     | 30,2    | 7,8               | 45. 41,8      | 7,2     | 9,9               | 9        |
| 22       | 17. 19,9    | 44,8    | 3,7               | 36. 27,5     | 29,5    | 7,9               | 45. 49,0      | 6,3     | 9,9               | 8        |
| 23       | 18. 4,7     | 44,4    | 3,9               | 36. 57,0     | 28,8    | 8,0               | 45. 55,3      | 5,5     | 9,9               | 7        |
| 24       | 18. 49,1    | 44,1    | 4,1               | 37. 25,8     | 28,2    | 8,1               | 46. 0,8       | 4,6     | 9,9               | 6        |
| 25       | 19. 33,2    | 43,7    | 4,2               | 37. 54,0     | 27,4    | 8,2               | 46. 5,4       | 3,8     | 10,0              | 5        |
| 26       | 20. 16,9    | 43,4    | 4,4               | 38. 21,4     | 26,7    | 8,3               | 46. 9,2       | 3,0     | 10,0              | 4        |
| 27       | 21. 0,3     | 43,0    | 4,5               | 38. 48,1     | 26,1    | 8,4               | 46. 12,2      | 2,1     | 10,0              | 3        |
| 28       | 21. 43,3    | 42,6    | 4,7               | 39. 14,2     | 25,3    | 8,5               | 46. 14,3      | 1,3     | 10,0              | 2        |
| 29       | 22. 25,9    | 42,1    | 4,8               | 39. 39,5     | 24,6    | 8,6               | 46. 15,6      | 0,4     | 10,0              | 1        |
| 30       | 23. 8,0     |         | 5,0               | 40. 4,1      |         | 8,7               | 46. 16,0      |         | 10,0              | 0        |
|          | Sig. XI. S. |         |                   | Sig. X. S.   |         |                   | Sig. IX. S.   |         |                   |          |
|          | Sig. V. N.  |         |                   | Sig. IV. N.  |         |                   | Sig. III. N.  |         |                   |          |



TABLE XVII. Reduction to the Ecliptic, and the Logarithm of the Cosine of the Heliocentric Latitude.

| ARGUMENT IX. <i>Longitude of the Georgian — that of the Node.</i> |            |              |            |              |             |              |          |
|-------------------------------------------------------------------|------------|--------------|------------|--------------|-------------|--------------|----------|
| Degrees.                                                          | Reduct.    | Log. cosin.  | Reduct.    | Log. cosin.  | Reduct.     | Log. cosin.  | Degrees. |
|                                                                   | to         |              | to         |              | to          |              |          |
|                                                                   | Eclipt.    |              | Eclipt.    |              | Eclipt.     |              |          |
|                                                                   | Sig. O.    |              | Sig. I.    |              | Sig. II.    |              |          |
|                                                                   | —          |              | —          |              | —           |              |          |
|                                                                   | Sig. VI.   | Lat. helioc. | Sig. VII.  | Lat. helioc. | Sig. VIII.  | Lat. helioc. |          |
|                                                                   | —          |              | —          |              | —           |              |          |
|                                                                   | SEC.       |              | SEC.       |              | SEC.        |              |          |
| 0                                                                 | 0,0        | 10,000000    | 8,1        | 9,999990     | 8,1         | 9,999971     | 30       |
| 1                                                                 | 0,4        | 10,000000    | 8,3        | 9,999990     | 8,0         | 9,999970     | 29       |
| 2                                                                 | 0,7        | 10,000000    | 8,4        | 9,999989     | 7,8         | 9,999969     | 28       |
| 3                                                                 | 1,0        | 10,000000    | 8,6        | 9,999988     | 7,6         | 9,999969     | 27       |
| 4                                                                 | 1,3        | 10,000000    | 8,7        | 9,999988     | 7,4         | 9,999969     | 26       |
| 5                                                                 | 1,6        | 10,000000    | 8,8        | 9,999987     | 7,2         | 9,999968     | 25       |
| 6                                                                 | 1,9        | 9,999999     | 8,9        | 9,999986     | 6,9         | 9,999967     | 24       |
| 7                                                                 | 2,3        | 9,999999     | 9,0        | 9,999985     | 6,7         | 9,999967     | 23       |
| 8                                                                 | 2,6        | 9,999999     | 9,1        | 9,999984     | 6,5         | 9,999966     | 22       |
| 9                                                                 | 2,9        | 9,999999     | 9,2        | 9,999984     | 6,3         | 9,999966     | 21       |
| 10                                                                | 3,2        | 9,999999     | 9,2        | 9,999983     | 6,0         | 9,999965     | 20       |
| 11                                                                | 3,5        | 9,999999     | 9,3        | 9,999982     | 5,8         | 9,999965     | 19       |
| 12                                                                | 3,8        | 9,999998     | 9,3        | 9,999982     | 5,5         | 9,999965     | 18       |
| 13                                                                | 4,1        | 9,999998     | 9,3        | 9,999981     | 5,2         | 9,999964     | 17       |
| 14                                                                | 4,4        | 9,999998     | 9,3        | 9,999980     | 4,9         | 9,999964     | 16       |
| 15                                                                | 4,7        | 9,999998     | 9,3        | 9,999980     | 4,7         | 9,999963     | 15       |
| 16                                                                | 4,9        | 9,999997     | 9,3        | 9,999979     | 4,4         | 9,999963     | 14       |
| 17                                                                | 5,2        | 9,999997     | 9,3        | 9,999978     | 4,1         | 9,999963     | 13       |
| 18                                                                | 5,5        | 9,999997     | 9,3        | 9,999978     | 3,8         | 9,999962     | 12       |
| 19                                                                | 5,8        | 9,999996     | 9,3        | 9,999977     | 3,5         | 9,999962     | 11       |
| 20                                                                | 6,0        | 9,999996     | 9,2        | 9,999976     | 3,2         | 9,999962     | 10       |
| 21                                                                | 6,3        | 9,999995     | 9,2        | 9,999976     | 2,9         | 9,999962     | 9        |
| 22                                                                | 6,5        | 9,999995     | 9,1        | 9,999975     | 2,6         | 9,999961     | 8        |
| 23                                                                | 6,7        | 9,999994     | 9,0        | 9,999974     | 2,3         | 9,999961     | 7        |
| 24                                                                | 6,9        | 9,999993     | 8,9        | 9,999974     | 1,9         | 9,999961     | 6        |
| 25                                                                | 7,2        | 9,999993     | 8,8        | 9,999973     | 1,6         | 9,999961     | 5        |
| 26                                                                | 7,4        | 9,999992     | 8,7        | 9,999972     | 1,3         | 9,999961     | 4        |
| 27                                                                | 7,6        | 9,999992     | 8,6        | 9,999972     | 1,0         | 9,999961     | 3        |
| 28                                                                | 7,8        | 9,999991     | 8,4        | 9,999972     | 0,7         | 9,999961     | 2        |
| 29                                                                | 8,0        | 9,999991     | 8,3        | 9,999971     | 0,4         | 9,999961     | 1        |
| 30                                                                | 8,1        | 9,999990     | 8,1        | 9,999971     | 0,0         | 9,999961     | 0        |
|                                                                   | Sig. XI. + |              | Sig. X. +  |              | Sig. IX. +  |              |          |
|                                                                   | Sig. V. +  |              | Sig. IV. + |              | Sig. III. + |              |          |







## 317 70



TABLE I. Common to the four Satellites of Jupiter.

| Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           |
|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|
| ARG.<br>A               | Cor.<br>B | Cor.<br>C | Cor.<br>H | ARG.<br>A               | Cor.<br>B | Cor.<br>C | Cor.<br>H | ARG.<br>A               | Cor.<br>B | Cor.<br>C | Cor.<br>H |
| 0                       | 153       | 76        | 153       | 4000                    | 247       | 29        | 59        | 8000                    | 302       | 2         | 4         |
| 100                     | 156       | 75        | 150       | 4100                    | 249       | 28        | 57        | 8100                    | 303       | 2         | 3         |
| 200                     | 158       | 74        | 148       | 4200                    | 251       | 27        | 55        | 8200                    | 303       | 1         | 3         |
| 300                     | 161       | 72        | 145       | 4300                    | 253       | 26        | 53        | 8300                    | 304       | 1         | 2         |
| 400                     | 163       | 71        | 143       | 4400                    | 255       | 25        | 51        | 8400                    | 304       | 1         | 2         |
| 500                     | 166       | 70        | 140       | 4500                    | 257       | 24        | 49        | 8500                    | 304       | 1         | 2         |
| 600                     | 168       | 69        | 138       | 4600                    | 259       | 23        | 47        | 8600                    | 305       | 1         | 1         |
| 700                     | 171       | 67        | 135       | 4700                    | 260       | 23        | 46        | 8700                    | 305       | 0         | 1         |
| 800                     | 173       | 66        | 133       | 4800                    | 262       | 22        | 44        | 8800                    | 305       | 0         | 1         |
| 900                     | 176       | 65        | 130       | 4900                    | 264       | 21        | 42        | 8900                    | 306       | 0         | 0         |
| 1000                    | 178       | 64        | 128       | 5000                    | 266       | 20        | 40        | 9000                    | 306       | 0         | 0         |
| 1100                    | 181       | 62        | 125       | 5100                    | 267       | 19        | 39        | 9100                    | 306       | 0         | 0         |
| 1200                    | 183       | 61        | 123       | 5200                    | 269       | 18        | 37        | 9200                    | 306       | 0         | 0         |
| 1300                    | 186       | 60        | 120       | 5300                    | 271       | 17        | 35        | 9300                    | 306       | 0         | 0         |
| 1400                    | 188       | 59        | 118       | 5400                    | 272       | 17        | 34        | 9400                    | 306       | 0         | 0         |
| 1500                    | 190       | 58        | 116       | 5500                    | 274       | 16        | 32        | 9500                    | 306       | 0         | 0         |
| 1600                    | 193       | 56        | 113       | 5600                    | 276       | 15        | 30        | 9600                    | 306       | 0         | 0         |
| 1700                    | 195       | 55        | 111       | 5700                    | 277       | 14        | 29        | 9700                    | 306       | 0         | 0         |
| 1800                    | 198       | 54        | 108       | 5800                    | 279       | 13        | 27        | 9800                    | 306       | 0         | 0         |
| 1900                    | 200       | 53        | 106       | 5900                    | 280       | 13        | 26        | 9900                    | 305       | 0         | 1         |
| 2000                    | 203       | 51        | 103       | 6000                    | 282       | 12        | 24        | 10000                   | 305       | 1         | 1         |
| 2100                    | 205       | 50        | 101       | 6100                    | 283       | 11        | 23        | 10100                   | 304       | 1         | 2         |
| 2200                    | 207       | 49        | 99        | 6200                    | 284       | 11        | 22        | 10200                   | 304       | 1         | 2         |
| 2300                    | 210       | 48        | 96        | 6300                    | 286       | 10        | 20        | 10300                   | 304       | 1         | 2         |
| 2400                    | 212       | 47        | 94        | 6400                    | 287       | 10        | 19        | 10400                   | 303       | 2         | 3         |
| 2500                    | 214       | 46        | 92        | 6500                    | 288       | 9         | 18        | 10500                   | 303       | 2         | 3         |
| 2600                    | 217       | 45        | 89        | 6600                    | 289       | 8         | 17        | 10600                   | 302       | 2         | 4         |
| 2700                    | 219       | 43        | 87        | 6700                    | 290       | 8         | 16        | 10700                   | 302       | 2         | 4         |
| 2800                    | 221       | 42        | 85        | 6800                    | 291       | 7         | 15        | 10800                   | 301       | 3         | 5         |
| 2900                    | 223       | 41        | 83        | 6900                    | 293       | 6         | 13        | 10900                   | 300       | 3         | 6         |
| 3000                    | 226       | 40        | 80        | 7000                    | 294       | 6         | 12        | 11000                   | 300       | 3         | 6         |
| 3100                    | 228       | 39        | 78        | 7100                    | 295       | 5         | 11        | 11100                   | 299       | 4         | 7         |
| 3200                    | 230       | 38        | 76        | 7200                    | 296       | 5         | 10        | 11200                   | 298       | 4         | 8         |
| 3300                    | 232       | 37        | 74        | 7300                    | 297       | 4         | 9         | 11300                   | 297       | 5         | 9         |
| 3400                    | 234       | 36        | 72        | 7400                    | 298       | 4         | 8         | 11400                   | 296       | 5         | 10        |
| 3500                    | 237       | 35        | 69        | 7500                    | 298       | 4         | 8         | 11500                   | 295       | 6         | 11        |
| 3600                    | 239       | 33        | 67        | 7600                    | 299       | 3         | 7         | 11600                   | 294       | 6         | 12        |
| 3700                    | 241       | 32        | 65        | 7700                    | 300       | 3         | 6         | 11700                   | 293       | 7         | 13        |
| 3800                    | 243       | 31        | 63        | 7800                    | 301       | 2         | 5         | 11800                   | 292       | 7         | 14        |
| 3900                    | 245       | 30        | 61        | 7900                    | 301       | 2         | 5         | 11900                   | 291       | 8         | 15        |
| 4000                    | 247       | 29        | 59        | 8000                    | 302       | 2         | 4         | 12000                   | 290       | 8         | 16        |



TABLE I. Common to the four Satellites of Jupiter.

| Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           |
|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|
| ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C | ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C | ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C |
| 12000                   | 290       | 16        | 8         | 16000                   | 208       | 98        | 49        | 20000                   | 98        | 208       | 104       |
| 12100                   | 288       | 18        | 9         | 16100                   | 206       | 100       | 50        | 20100                   | 95        | 211       | 105       |
| 12200                   | 287       | 19        | 9         | 16200                   | 203       | 103       | 51        | 20200                   | 92        | 214       | 107       |
| 12300                   | 286       | 20        | 10        | 16300                   | 200       | 106       | 53        | 20300                   | 89        | 217       | 108       |
| 12400                   | 284       | 22        | 11        | 16400                   | 198       | 108       | 54        | 20400                   | 87        | 219       | 110       |
| 12500                   | 283       | 23        | 12        | 16500                   | 195       | 111       | 55        | 20500                   | 85        | 221       | 111       |
| 12600                   | 281       | 25        | 12        | 16600                   | 192       | 114       | 57        | 20600                   | 82        | 224       | 112       |
| 12700                   | 280       | 26        | 13        | 16700                   | 190       | 116       | 58        | 20700                   | 80        | 226       | 113       |
| 12800                   | 278       | 28        | 14        | 16800                   | 187       | 119       | 60        | 20800                   | 77        | 229       | 115       |
| 12900                   | 276       | 30        | 15        | 16900                   | 184       | 122       | 61        | 20900                   | 75        | 231       | 116       |
| 13000                   | 275       | 31        | 16        | 17000                   | 181       | 125       | 62        | 21000                   | 72        | 234       | 117       |
| 13100                   | 273       | 33        | 16        | 17100                   | 178       | 128       | 64        | 21100                   | 70        | 236       | 118       |
| 13200                   | 271       | 35        | 17        | 17200                   | 176       | 130       | 65        | 21200                   | 68        | 238       | 119       |
| 13300                   | 270       | 36        | 18        | 17300                   | 173       | 133       | 66        | 21300                   | 65        | 241       | 120       |
| 13400                   | 268       | 38        | 19        | 17400                   | 170       | 136       | 68        | 21400                   | 63        | 243       | 121       |
| 13500                   | 266       | 40        | 20        | 17500                   | 167       | 139       | 69        | 21500                   | 61        | 245       | 122       |
| 13600                   | 264       | 42        | 21        | 17600                   | 164       | 142       | 71        | 21600                   | 58        | 248       | 124       |
| 13700                   | 262       | 44        | 22        | 17700                   | 162       | 144       | 72        | 21700                   | 56        | 250       | 125       |
| 13800                   | 260       | 46        | 23        | 17800                   | 159       | 147       | 73        | 21800                   | 54        | 252       | 126       |
| 13900                   | 259       | 47        | 24        | 17900                   | 156       | 150       | 75        | 21900                   | 52        | 254       | 127       |
| 14000                   | 256       | 50        | 25        | 18000                   | 153       | 153       | 76        | 22000                   | 50        | 256       | 128       |
| 14100                   | 254       | 52        | 26        | 18100                   | 150       | 156       | 78        | 22100                   | 47        | 259       | 129       |
| 14200                   | 252       | 54        | 27        | 18200                   | 147       | 159       | 80        | 22200                   | 46        | 260       | 130       |
| 14300                   | 250       | 56        | 28        | 18300                   | 144       | 162       | 81        | 22300                   | 44        | 262       | 131       |
| 14400                   | 248       | 58        | 29        | 18400                   | 142       | 164       | 82        | 22400                   | 42        | 264       | 132       |
| 14500                   | 245       | 61        | 30        | 18500                   | 139       | 167       | 83        | 22500                   | 40        | 266       | 133       |
| 14600                   | 243       | 63        | 31        | 18600                   | 136       | 170       | 85        | 22600                   | 38        | 268       | 134       |
| 14700                   | 241       | 65        | 32        | 18700                   | 133       | 173       | 86        | 22700                   | 36        | 270       | 135       |
| 14800                   | 238       | 68        | 34        | 18800                   | 130       | 176       | 88        | 22800                   | 35        | 271       | 135       |
| 14900                   | 236       | 70        | 35        | 18900                   | 128       | 178       | 89        | 22900                   | 33        | 273       | 136       |
| 15000                   | 234       | 72        | 36        | 19000                   | 125       | 181       | 90        | 23000                   | 31        | 275       | 137       |
| 15100                   | 231       | 75        | 37        | 19100                   | 122       | 184       | 92        | 23100                   | 30        | 276       | 138       |
| 15200                   | 229       | 77        | 38        | 19200                   | 119       | 187       | 93        | 23200                   | 28        | 278       | 139       |
| 15300                   | 226       | 80        | 40        | 19300                   | 116       | 190       | 95        | 23300                   | 26        | 280       | 140       |
| 15400                   | 224       | 82        | 41        | 19400                   | 114       | 192       | 96        | 23400                   | 25        | 281       | 140       |
| 15500                   | 221       | 85        | 42        | 19500                   | 111       | 195       | 97        | 23500                   | 23        | 283       | 141       |
| 15600                   | 219       | 87        | 43        | 19600                   | 108       | 198       | 99        | 23600                   | 22        | 284       | 142       |
| 15700                   | 217       | 89        | 45        | 19700                   | 106       | 200       | 100       | 23700                   | 20        | 286       | 143       |
| 15800                   | 214       | 92        | 46        | 19800                   | 103       | 203       | 101       | 23800                   | 19        | 287       | 143       |
| 15900                   | 211       | 95        | 47        | 19900                   | 100       | 206       | 103       | 23900                   | 18        | 288       | 144       |
| 16000                   | 208       | 98        | 49        | 20000                   | 98        | 208       | 104       | 24000                   | 16        | 290       | 145       |



TABLE I. Common to the four Satellites of Jupiter.

| Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           | Corrections of the Arg. |           |           |           |
|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|
| ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C | ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C | ARG.<br>A               | Cor.<br>B | Cor.<br>H | Cor.<br>C |
| 24000                   | 16        | 290       | 145       | 28000                   | 4         | 302       | 151       | 32000                   | 59        | 247       | 123       |
| 24100                   | 15        | 291       | 145       | 28100                   | 5         | 301       | 150       | 32100                   | 61        | 245       | 122       |
| 24200                   | 14        | 292       | 146       | 28200                   | 5         | 301       | 150       | 32200                   | 63        | 243       | 121       |
| 24300                   | 13        | 293       | 146       | 28300                   | 6         | 300       | 150       | 32300                   | 65        | 241       | 120       |
| 24400                   | 12        | 294       | 147       | 28400                   | 7         | 299       | 149       | 32400                   | 67        | 239       | 119       |
| 24500                   | 11        | 295       | 148       | 28500                   | 8         | 298       | 149       | 32500                   | 69        | 237       | 118       |
| 24600                   | 10        | 296       | 148       | 28600                   | 8         | 298       | 149       | 32600                   | 72        | 234       | 117       |
| 24700                   | 9         | 297       | 149       | 28700                   | 9         | 297       | 148       | 32700                   | 74        | 232       | 116       |
| 24800                   | 8         | 298       | 149       | 28800                   | 10        | 296       | 148       | 32800                   | 76        | 230       | 115       |
| 24900                   | 7         | 299       | 150       | 28900                   | 11        | 295       | 147       | 32900                   | 78        | 228       | 114       |
| 25000                   | 6         | 300       | 150       | 29000                   | 12        | 294       | 147       | 33000                   | 80        | 226       | 113       |
| 25100                   | 6         | 300       | 150       | 29100                   | 13        | 293       | 146       | 33100                   | 83        | 223       | 112       |
| 25200                   | 5         | 301       | 151       | 29200                   | 15        | 291       | 146       | 33200                   | 85        | 221       | 111       |
| 25300                   | 4         | 302       | 151       | 29300                   | 16        | 290       | 145       | 33300                   | 87        | 219       | 110       |
| 25400                   | 4         | 302       | 151       | 29400                   | 17        | 289       | 144       | 33400                   | 89        | 217       | 109       |
| 25500                   | 3         | 303       | 151       | 29500                   | 18        | 288       | 144       | 33500                   | 92        | 214       | 108       |
| 25600                   | 3         | 303       | 152       | 29600                   | 19        | 287       | 143       | 33600                   | 94        | 212       | 107       |
| 25700                   | 2         | 304       | 152       | 29700                   | 20        | 286       | 143       | 33700                   | 96        | 210       | 105       |
| 25800                   | 2         | 304       | 152       | 29800                   | 22        | 284       | 142       | 33800                   | 99        | 207       | 103       |
| 25900                   | 2         | 304       | 152       | 29900                   | 23        | 283       | 142       | 33900                   | 101       | 205       | 102       |
| 26000                   | 1         | 305       | 152       | 30000                   | 24        | 282       | 141       | 34000                   | 103       | 203       | 101       |
| 26100                   | 1         | 305       | 153       | 30100                   | 26        | 280       | 140       | 34100                   | 106       | 200       | 100       |
| 26200                   | 0         | 306       | 153       | 30200                   | 27        | 279       | 139       | 34200                   | 108       | 198       | 99        |
| 26300                   | 0         | 306       | 153       | 30300                   | 29        | 277       | 138       | 34300                   | 111       | 195       | 97        |
| 26400                   | 0         | 306       | 153       | 30400                   | 30        | 276       | 138       | 34400                   | 113       | 193       | 96        |
| 26500                   | 0         | 306       | 153       | 30500                   | 32        | 274       | 137       | 34500                   | 116       | 190       | 95        |
| 26600                   | 0         | 306       | 153       | 30600                   | 34        | 272       | 136       | 34600                   | 118       | 188       | 94        |
| 26700                   | 0         | 306       | 153       | 30700                   | 35        | 271       | 135       | 34700                   | 120       | 186       | 93        |
| 26800                   | 0         | 306       | 153       | 30800                   | 37        | 269       | 134       | 34800                   | 123       | 183       | 92        |
| 26900                   | 0         | 306       | 153       | 30900                   | 39        | 267       | 133       | 34900                   | 125       | 181       | 90        |
| 27000                   | 0         | 306       | 153       | 31000                   | 40        | 266       | 133       | 35000                   | 128       | 178       | 89        |
| 27100                   | 0         | 306       | 153       | 31100                   | 42        | 264       | 132       | 35100                   | 130       | 176       | 88        |
| 27200                   | 1         | 305       | 153       | 31200                   | 44        | 262       | 131       | 35200                   | 133       | 173       | 86        |
| 27300                   | 1         | 305       | 153       | 31300                   | 46        | 260       | 130       | 35300                   | 135       | 171       | 85        |
| 27400                   | 1         | 305       | 153       | 31400                   | 47        | 259       | 129       | 35400                   | 138       | 168       | 84        |
| 27500                   | 2         | 304       | 152       | 31500                   | 49        | 257       | 128       | 35500                   | 140       | 166       | 83        |
| 27600                   | 2         | 304       | 152       | 31600                   | 51        | 255       | 127       | 35600                   | 143       | 163       | 81        |
| 27700                   | 2         | 304       | 152       | 31700                   | 53        | 253       | 126       | 35700                   | 145       | 161       | 80        |
| 27800                   | 3         | 303       | 152       | 31800                   | 55        | 251       | 125       | 35800                   | 148       | 158       | 79        |
| 27900                   | 3         | 303       | 151       | 31900                   | 57        | 249       | 124       | 35900                   | 150       | 156       | 78        |
| 28000                   | 4         | 302       | 151       | 32000                   | 59        | 247       | 123       | 36000                   | 153       | 153       | 76        |



## SATELLITES OF JUPITER.

TABLE II. Common to the four Satellites of Jupiter.

CORRECTION of B depending on the Argument S<sup>a</sup>.

| ARG.<br>S | Co.<br>B | ARG.<br>S | Cor.<br>B | ARG.<br>S | Cor.<br>B |
|-----------|----------|-----------|-----------|-----------|-----------|
| 0         | 53       | 3400      | 8         | 6700      | 100       |
| 100       | 50       | 3500      | 9         | 6800      | 102       |
| 200       | 46       | 3600      | 11        | 6900      | 103       |
| 300       | 43       | 3700      | 13        | 7000      | 104       |
| 400       | 40       | 3800      | 16        | 7100      | 105       |
| 500       | 37       | 3900      | 18        | 7200      | 106       |
| 600       | 34       | 4000      | 21        | 7300      | 106       |
| 700       | 31       | 4100      | 24        | 7400      | 106       |
| 800       | 28       | 4200      | 27        | 7500      | 106       |
| 900       | 25       | 4300      | 30        | 7600      | 106       |
| 1000      | 22       | 4400      | 33        | 7700      | 106       |
| 1100      | 19       | 4500      | 36        | 7800      | 105       |
| 1200      | 17       | 4600      | 39        | 7900      | 104       |
| 1300      | 15       | 4700      | 43        | 8000      | 103       |
| 1400      | 12       | 4800      | 46        | 8100      | 103       |
| 1500      | 10       | 4900      | 50        | 8200      | 101       |
| 1600      | 8        | 5000      | 53        | 8300      | 99        |
| 1700      | 7        | 5100      | 56        | 8400      | 98        |
| 1800      | 5        | 5200      | 60        | 8500      | 96        |
| 1900      | 3        | 5300      | 63        | 8600      | 94        |
| 2000      | 3        | 5400      | 67        | 8700      | 91        |
| 2100      | 2        | 5500      | 70        | 8800      | 89        |
| 2200      | 0        | 5600      | 73        | 8900      | 87        |
| 2300      | 0        | 5700      | 76        | 9000      | 84        |
| 2400      | 0        | 5800      | 79        | 9100      | 81        |
| 2500      | 0        | 5900      | 82        | 9200      | 78        |
| 2600      | 0        | 6000      | 85        | 9300      | 75        |
| 2700      | 0        | 6100      | 88        | 9400      | 72        |
| 2800      | 0        | 6200      | 90        | 9500      | 69        |
| 2900      | 1        | 6300      | 93        | 9600      | 66        |
| 3000      | 2        | 6400      | 95        | 9700      | 63        |
| 3100      | 3        | 6500      | 97        | 9800      | 60        |
| 3200      | 4        | 6600      | 98        | 9900      | 56        |
| 3300      | 6        | 6700      | 100       | 10000     | 53        |
| 3400      | 8        |           |           |           |           |

<sup>a</sup> This Correction of B is common to the four Satellites.TABLE III.  
The corresponding  
Dec. Parts of a Com.  
Year.

| Days of a<br>Com. Year. | Dec. Parts<br>of a<br>Com. Year |
|-------------------------|---------------------------------|
| 10 January.             | 0,03                            |
| 20                      | 0,05                            |
| 30                      | 0,08                            |
| 9 February.             | 0,11                            |
| 19                      | 0,14                            |
| 1 March.                | 0,16                            |
| 11                      | 0,19                            |
| 21                      | 0,22                            |
| 31                      | 0,25                            |
| 10 April.               | 0,27                            |
| 20                      | 0,30                            |
| 30                      | 0,33                            |
| 10 May.                 | 0,36                            |
| 20                      | 0,38                            |
| 30                      | 0,41                            |
| 9 June                  | 0,44                            |
| 19                      | 0,47                            |
| 29                      | 0,49                            |
| 9 July                  | 0,52                            |
| 19                      | 0,55                            |
| 29                      | 0,58                            |
| 8 August.               | 0,60                            |
| 18                      | 0,63                            |
| 28                      | 0,66                            |
| 7 September.            | 0,68                            |
| 17                      | 0,71                            |
| 27                      | 0,74                            |
| 7 October.              | 0,77                            |
| 17                      | 0,79                            |
| 27                      | 0,82                            |
| 6 November.             | 0,85                            |
| 16                      | 0,88                            |
| 26                      | 0,90                            |
| 6 December.             | 0,93                            |
| 16                      | 0,96                            |
| 26                      | 0,99                            |



TABLE IV. Common to the four Satellites.

Equation of Time for 1780, with the Secular Variation.

ARGUMENT S. *Sun's mean Anomaly.*

| ARG. | Equation.  | Diff. | Sec.   | Diff. | ARG. | Equation   | Diff. | Sec.   | Diff. |
|------|------------|-------|--------|-------|------|------------|-------|--------|-------|
| S    | of Time.   |       | Var.   |       | S    | of Time.   |       | Var.   |       |
|      | M. S.      | SEC.  | SEC.   | SEC.  |      | M. S.      | SEC.  | SEC.   | SEC.  |
| 0    | - 3. 21,2  | 40,6  | - 34,8 | 2,0   | 3400 | + 16. 14,8 | 5,5   | + 5,4  | 4,5   |
| 100  | 4. 1,8     | 35,7  | 32,8   | 2,4   | 3500 | 16. 9,3    | 16,0  | + 0,9  | 4,8   |
| 200  | 4. 37,5    | 31,0  | 30,4   | 3,0   | 3600 | 15. 53,3   | 27,8  | - 3,9  | 4,4   |
| 300  | 5. 8,5     | 25,0  | 27,4   | 3,4   | 3700 | 15. 25,5   | 39,3  | 8,3    | 4,6   |
| 400  | 5. 33,5    | 17,5  | 24,0   | 3,7   | 3800 | 14. 46,2   | 49,9  | 12,9   | 4,4   |
| 500  | 5. 51,0    | 10,8  | 20,3   | 4,1   | 3900 | 13. 56,3   | 60,5  | 17,3   | 4,2   |
| 600  | 6. 1,8     | 3,2   | 16,2   | 4,2   | 4000 | 12. 55,8   | 70,8  | 21,5   | 3,9   |
| 700  | 6. 5,0     | 5,0   | 12,0   | 4,2   | 4100 | 11. 45,0   | 80,2  | 25,4   | 3,4   |
| 800  | 6. 0,0     | 12,8  | 7,8    | 4,4   | 4200 | 10. 24,8   | 88,5  | 28,8   | 3,0   |
| 900  | 5. 47,2    | 21,0  | - 3,4  | 4,4   | 4300 | 8. 56,3    | 96,1  | 31,8   | 2,4   |
| 1000 | 5. 26,2    | 28,7  | + 1,0  | 4,2   | 4400 | 7. 20,2    | 101,5 | 34,2   | 1,8   |
| 1100 | 4. 57,5    | 36,0  | 5,2    | 4,2   | 4500 | 5. 38,7    | 106,4 | 36,0   | 1,2   |
| 1200 | 4. 21,5    | 43,8  | 9,4    | 3,9   | 4600 | 3. 52,3    | 107,9 | 37,2   | 0,4   |
| 1300 | 3. 37,7    | 49,9  | 13,3   | 3,7   | 4700 | 2. 4,4     | 109,4 | 37,6   | 0,3   |
| 1400 | 2. 47,8    | 56,0  | 17,0   | 3,3   | 4800 | + 0. 15,0  | 109,9 | 37,3   | 0,9   |
| 1500 | 1. 51,8    | 62,3  | 20,3   | 3,1   | 4900 | - 1. 34,9  | 106,3 | 36,4   | 1,6   |
| 1600 | - 0. 49,5  | 65,9  | 23,4   | 2,6   | 5000 | 3. 21,2    | 103,7 | 34,8   | 2,3   |
| 1700 | + 0. 16,4  | 70,8  | 26,0   | 2,3   | 5100 | 5. 4,9     | 98,2  | 32,5   | 2,9   |
| 1800 | 1. 27,2    | 72,8  | 28,3   | 1,8   | 5200 | 6. 43,1    | 90,4  | 29,6   | 3,4   |
| 1900 | 2. 40,0    | 75,6  | 30,1   | 1,4   | 5300 | 8. 13,5    | 82,8  | 26,2   | 3,8   |
| 2000 | 3. 55,6    | 76,3  | 31,5   | 1,0   | 5400 | 9. 36,3    | 74,0  | 22,4   | 4,2   |
| 2100 | 5. 11,9    | 76,3  | 32,5   | 0,5   | 5500 | 10. 50,3   | 64,3  | 18,2   | 4,5   |
| 2200 | 6. 28,2    | 76,2  | 33,0   | 0,1   | 5600 | 11. 54,6   | 54,1  | 13,7   | 4,7   |
| 2300 | 7. 44,4    | 74,8  | 33,1   | 0,4   | 5700 | 12. 48,7   | 43,9  | 9,0    | 4,8   |
| 2400 | 8. 59,2    | 71,5  | 32,7   | 0,9   | 5800 | 13. 32,6   | 32,5  | - 4,2  | 4,8   |
| 2500 | 10. 10,7   | 67,8  | 31,8   | 1,3   | 5900 | 14. 5,1    | 21,1  | + 0,6  | 4,6   |
| 2600 | 11. 18,5   | 63,2  | 30,5   | 1,7   | 6000 | 14. 26,2   | 10,6  | 5,2    | 4,5   |
| 2700 | 12. 21,7   | 56,7  | 28,8   | 2,2   | 6100 | 14. 36,8   | 0,2   | 9,7    | 4,3   |
| 2800 | 13. 18,4   | 51,2  | 26,6   | 2,7   | 6200 | 14. 37,0   | 9,7   | 14,0   | 4,1   |
| 2900 | 14. 9,6    | 43,2  | 23,9   | 3,0   | 6300 | 14. 27,3   | 19,3  | 18,1   | 3,7   |
| 3000 | 14. 52,8   | 34,9  | 20,9   | 3,4   | 6400 | 14. 8,0    | 28,9  | 21,8   | 3,3   |
| 3100 | 15. 27,7   | 25,7  | 17,5   | 3,8   | 6500 | 13. 39,1   | 36,6  | 25,1   | 2,9   |
| 3200 | 15. 53,4   | 15,8  | 13,7   | 4,1   | 6600 | 13. 2,5    | 43,4  | 28,0   | 2,4   |
| 3300 | 16. 9,2    | 5,6   | 9,6    | 4,2   | 6700 | 12. 19,1   | 50,3  | 30,4   | 2,0   |
| 3400 | + 16. 14,8 |       | + 5,4  |       | 6800 | - 11. 28,8 |       | + 32,4 |       |



## SATELLITES OF JUPITER.

TABLE IV. Equation of Time for 1780, with the Secular Variation.

| ARGUMENT S. <i>Sun's mean Anomaly.</i> |            |       |        |       |       |           |       |        |       |
|----------------------------------------|------------|-------|--------|-------|-------|-----------|-------|--------|-------|
| ARG.                                   | Equation.  | Diff. | Sec.   | Diff. | ARG.  | Equation. | Diff. | Sec.   | Diff. |
| S                                      | M. S.      | SEC.  | SEC.   | SEC.  | S     | M. S.     | SEC.  | SEC.   | SEC.  |
| 6800                                   | - 11. 28,8 | 55,6  | + 32,4 | 1,6   | 8400  | + 3. 24,9 | 19,1  | + 3,5  | 4,5   |
| 6900                                   | 10. 33,2   | 60,0  | 34,0   | 1,0   | 8500  | 3. 44,0   | 11,2  | - 1,0  | 4,5   |
| 7000                                   | 9. 33,2    | 63,4  | 35,0   | 0,6   | 8600  | 3. 55,2   | 4,2   | 5,5    | 4,5   |
| 7100                                   | 8. 29,8    | 66,5  | 35,6   | 0,0   | 8700  | 3. 59,4   | 3,9   | 10,0   | 4,3   |
| 7200                                   | 7. 23,3    | 67,3  | 35,6   | 0,4   | 8800  | 3. 55,5   | 11,7  | 14,3   | 4,2   |
| 7300                                   | 6. 16,0    | 67,8  | 35,2   | 0,9   | 8900  | 3. 43,8   | 18,6  | 18,5   | 3,9   |
| 7400                                   | 5. 8,2     | 67,7  | 34,3   | 1,3   | 9000  | 3. 25,2   | 25,1  | 22,4   | 3,6   |
| 7500                                   | 4. 0,5     | 66,3  | 33,0   | 1,9   | 9100  | 3. 0,1    | 30,6  | 26,0   | 3,2   |
| 7600                                   | 2. 54,2    | 63,8  | 31,1   | 2,2   | 9200  | 2. 29,5   | 36,1  | 29,2   | 2,7   |
| 7700                                   | 1. 50,4    | 60,0  | 28,9   | 2,6   | 9300  | 1. 53,4   | 40,9  | 31,9   | 2,2   |
| 7800                                   | - 0. 50,4  | 57,5  | 26,3   | 3,1   | 9400  | 1. 12,5   | 43,6  | 34,1   | 1,8   |
| 7900                                   | + 0. 7,1   | 51,7  | 23,2   | 3,4   | 9500  | + 0. 28,9 | 45,8  | 35,9   | 0,9   |
| 8000                                   | 0. 58,8    | 46,5  | 19,8   | 3,7   | 9600  | - 0. 16,9 | 47,4  | 36,8   | 0,4   |
| 8100                                   | 1. 45,3    | 39,8  | 16,1   | 4,0   | 9700  | 1. 4,3    | 47,1  | 37,2   | 0,0   |
| 8200                                   | 2. 25,1    | 33,6  | 12,1   | 4,1   | 9800  | 1. 51,4   | 46,1  | 37,2   | 0,8   |
| 8300                                   | 2. 58,7    | 26,2  | 8,0    | 4,5   | 9900  | 2. 37,5   | 43,7  | 36,4   | 1,6   |
| 8400                                   | + 3. 24,9  |       | + 3,5  |       | 10000 | - 3. 21,2 |       | - 34,8 |       |

TABLE V. Equation of Light, common to the four Satellites.

| ARGUMENT A.              |       |       |       |       |       |       |       |       |  |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| ARGUMENT B<br>Corrected. |       | 00    | 3000  | 6000  | 9000  | 12000 | 15000 | 18000 |  |
|                          |       | 36000 | 33000 | 30000 | 27000 | 24000 | 21000 | 18000 |  |
|                          |       | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  |  |
| 0                        | 10000 | 2,5   | 2,3   | 2,0   | 1,4   | 0,8   | 0,5   | 0,3   |  |
| 500                      | 9500  | 2,4   | 2,3   | 2,0   | 1,4   | 0,9   | 0,6   | 0,5   |  |
| 1000                     | 9000  | 2,0   | 1,9   | 1,8   | 1,4   | 1,1   | 0,9   | 0,9   |  |
| 1500                     | 8500  | 1,5   | 1,4   | 1,4   | 1,4   | 1,5   | 1,4   | 1,4   |  |
| 2000                     | 8000  | 0,8   | 0,8   | 1,0   | 1,4   | 1,8   | 2,0   | 2,1   |  |
| 2500                     | 7500  | 0,3   | 0,5   | 0,8   | 1,4   | 2,0   | 2,3   | 2,5   |  |
| 3000                     | 7000  | 0,3   | 0,4   | 0,8   | 1,4   | 2,0   | 2,4   | 2,6   |  |
| 3500                     | 6500  | 0,8   | 0,8   | 1,1   | 1,4   | 1,8   | 2,0   | 2,1   |  |
| 4000                     | 6000  | 1,5   | 1,5   | 1,5   | 1,4   | 1,4   | 1,3   | 1,4   |  |
| 4500                     | 5500  | 2,3   | 2,2   | 1,9   | 1,4   | 1,0   | 0,9   | 0,8   |  |
| 5000                     | 5000  | 2,5   | 2,3   | 2,0   | 1,4   | 0,8   | 0,5   | 2,1   |  |



TABLE VI. Equation of Light, common to all the Satellites.

ARGUMENT S. *The mean Anomaly of the Sun.*

| ARGUMENT B<br>Corrected. |       | 0     | 500  | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 |
|--------------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|
|                          |       | 10000 | 9500 | 9000 | 8500 | 8000 | 7500 | 7000 | 6500 | 6000 | 5500 | 5000 |
|                          |       | SEC.  | SEC. | SEC. | SEC. | SEC. | SEC. | SEC. | SEC. | SEC. | SEC. | SEC. |
| 0                        | 10000 | 16,7  | 16,3 | 15,0 | 13,2 | 10,8 | 8,3  | 5,8  | 3,5  | 1,6  | 0,5  | 0,0  |
| 500                      | 9500  | 16,4  | 16,0 | 14,6 | 13,1 | 10,8 | 8,3  | 5,8  | 3,6  | 1,8  | 0,7  | 0,3  |
| 1000                     | 9000  | 15,6  | 15,2 | 14,2 | 12,6 | 10,5 | 8,3  | 6,1  | 4,1  | 2,4  | 1,4  | 1,0  |
| 1500                     | 8500  | 14,2  | 14,0 | 13,1 | 11,7 | 10,1 | 8,3  | 6,5  | 4,9  | 3,5  | 2,6  | 2,4  |
| 2000                     | 8000  | 12,4  | 12,2 | 11,5 | 10,6 | 9,5  | 8,3  | 7,1  | 6,0  | 5,1  | 4,5  | 4,3  |
| 2500                     | 7500  | 9,9   | 9,8  | 9,6  | 9,2  | 8,8  | 8,3  | 7,8  | 7,4  | 7,0  | 6,8  | 6,7  |
| 3000                     | 7000  | 7,2   | 7,2  | 7,4  | 7,7  | 8,0  | 8,3  | 8,6  | 8,9  | 9,2  | 9,4  | 9,4  |
| 3500                     | 6500  | 4,5   | 4,7  | 5,2  | 6,1  | 7,1  | 8,3  | 9,5  | 10,5 | 11,4 | 12,0 | 12,2 |
| 4000                     | 6000  | 2,1   | 2,4  | 3,3  | 4,7  | 6,4  | 8,3  | 10,2 | 12,0 | 13,3 | 14,2 | 14,5 |
| 4500                     | 5500  | 0,6   | 0,9  | 2,0  | 3,8  | 5,9  | 8,3  | 10,7 | 12,9 | 14,6 | 15,7 | 16,0 |
| 5000                     | 5000  | 0,0   | 0,4  | 1,6  | 3,4  | 5,8  | 8,3  | 10,8 | 13,2 | 15,0 | 16,3 | 16,6 |

TABLE VII. EQUATION B.

| ARGUMENT B<br>Corrected. |       | Equat. B |      | Diff. | ARGUMENT B<br>Corrected. |      | Equat. B |      | Diff. |
|--------------------------|-------|----------|------|-------|--------------------------|------|----------|------|-------|
|                          |       | M.       | S.   |       |                          |      | M.       | S.   |       |
| 0                        | 10000 | 16.      | 26,4 | 0,8   | 2500                     | 7500 | 8.       | 59,9 | 30,6  |
| 100                      | 9900  | 16.      | 25,6 | 2,5   | 2600                     | 7400 | 8.       | 29,3 | 30,9  |
| 200                      | 9800  | 16.      | 23,1 | 4,0   | 2700                     | 7300 | 7.       | 58,4 | 30,9  |
| 300                      | 9700  | 16.      | 19,1 | 5,8   | 2800                     | 7200 | 7.       | 27,5 | 30,9  |
| 400                      | 9600  | 16.      | 13,3 | 7,2   | 2900                     | 7100 | 6.       | 56,6 | 30,8  |
| 500                      | 9500  | 16.      | 6,1  | 9,0   | 3000                     | 7000 | 6.       | 25,8 | 30,6  |
| 600                      | 9400  | 15.      | 57,1 | 10,4  | 3100                     | 6900 | 5.       | 55,2 | 30,2  |
| 700                      | 9300  | 15.      | 46,7 | 11,9  | 3200                     | 6800 | 5.       | 25,0 | 29,8  |
| 800                      | 9200  | 15.      | 34,8 | 13,6  | 3300                     | 6700 | 4.       | 55,2 | 29,1  |
| 900                      | 9100  | 15.      | 21,2 | 14,9  | 3400                     | 6600 | 4.       | 26,1 | 28,2  |
| 1000                     | 9000  | 15.      | 6,3  | 16,5  | 3500                     | 6500 | 3.       | 57,9 | 27,4  |
| 1100                     | 8900  | 14.      | 49,8 | 17,7  | 3600                     | 6400 | 3.       | 30,5 | 26,3  |
| 1200                     | 8800  | 14.      | 32,1 | 19,3  | 3700                     | 6300 | 3.       | 4,2  | 25,0  |
| 1300                     | 8700  | 14.      | 12,8 | 20,4  | 3800                     | 6200 | 2.       | 39,2 | 23,7  |
| 1400                     | 8600  | 13.      | 52,4 | 21,8  | 3900                     | 6100 | 2.       | 15,5 | 22,2  |
| 1500                     | 8500  | 13.      | 30,6 | 22,9  | 4000                     | 6000 | 1.       | 53,3 | 20,4  |
| 1600                     | 8400  | 13.      | 7,7  | 24,1  | 4100                     | 5900 | 1.       | 32,9 | 18,9  |
| 1700                     | 8300  | 12.      | 43,6 | 25,0  | 4200                     | 5800 | 1.       | 14,0 | 16,8  |
| 1800                     | 8200  | 12.      | 18,6 | 26,1  | 4300                     | 5700 | 0.       | 57,2 | 14,7  |
| 1900                     | 8100  | 11.      | 52,5 | 26,9  | 4400                     | 5600 | 0.       | 42,5 | 12,9  |
| 2000                     | 8000  | 11.      | 25,6 | 27,9  | 4500                     | 5500 | 0.       | 29,6 | 10,5  |
| 2100                     | 7900  | 10.      | 57,7 | 28,6  | 4600                     | 5400 | 0.       | 19,1 | 8,4   |
| 2200                     | 7800  | 10.      | 29,1 | 29,3  | 4700                     | 5300 | 0.       | 10,7 | 5,8   |
| 2300                     | 7700  | 9.       | 59,8 | 29,6  | 4800                     | 5200 | 0.       | 4,9  | 3,6   |
| 2400                     | 7600  | 9.       | 30,2 | 30,3  | 4900                     | 5100 | 0.       | 1,3  | 1,3   |
| 2500                     | 7500  | 8.       | 59,9 |       | 5000                     | 5000 | 0.       | 0,0  |       |



TABLE VIII. *Epochs of the mean Conjunctions of the first Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A.    | S.   | B.   | C.   | F.  | G.  | H.   |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |
| B. 1660 | 1.             | 13. | 24. | 1,2  | 32259 | 5144 | 3429 | 5985 | 473 | 614 | 5375 |
| 1661    | 1.             | 3.  | 35. | 25,9 | 35287 | 5125 | 2569 | 0151 | 229 | 364 | 6216 |
| 1662    | 0.             | 17. | 46. | 50,6 | 2315  | 5107 | 1709 | 4316 | 986 | 115 | 7058 |
| 1663    | 0.             | 7.  | 58. | 15,3 | 5345  | 5089 | 849  | 8482 | 742 | 866 | 7900 |
| B. 1664 | 0.             | 16. | 38. | 16,0 | 8389  | 5121 | 32   | 7668 | 503 | 621 | 8747 |
| 1665    | 0.             | 6.  | 49. | 40,7 | 11419 | 5101 | 9172 | 1834 | 259 | 372 | 9588 |
| 1666    | 1.             | 15. | 29. | 41,4 | 14463 | 5131 | 8355 | 1020 | 019 | 126 | 0434 |
| 1667    | 1.             | 5.  | 41. | 6,1  | 17492 | 5113 | 7497 | 5185 | 776 | 877 | 1277 |
| B. 1668 | 1.             | 14. | 21. | 6,7  | 20536 | 5143 | 6681 | 4371 | 536 | 632 | 2122 |
| 1669    | 1.             | 4.  | 32. | 31,4 | 23566 | 5125 | 5824 | 8536 | 292 | 382 | 2962 |
| 1670    | 0.             | 18. | 43. | 56,1 | 26596 | 5106 | 4965 | 2701 | 049 | 133 | 3802 |
| 1671    | 0.             | 8.  | 55. | 20,8 | 29625 | 5088 | 4105 | 6866 | 805 | 884 | 4644 |
| B. 1672 | 0.             | 17. | 35. | 21,5 | 32669 | 5118 | 3290 | 6052 | 566 | 639 | 5489 |
| 1673    | 0.             | 7.  | 46. | 46,2 | 35698 | 5100 | 2430 | 0217 | 322 | 390 | 6331 |
| 1674    | 1.             | 16. | 26. | 46,8 | 2742  | 5130 | 1614 | 9403 | 082 | 144 | 7177 |
| 1675    | 1.             | 6.  | 38. | 11,6 | 5771  | 5112 | 752  | 3569 | 839 | 895 | 8020 |
| B. 1676 | 1.             | 15. | 18. | 12,2 | 8816  | 5142 | 9937 | 2755 | 599 | 650 | 8866 |
| 1677    | 1.             | 5.  | 29. | 36,9 | 11845 | 5123 | 9077 | 6921 | 355 | 401 | 9708 |
| 1678    | 0.             | 19. | 41. | 1,7  | 14875 | 5105 | 8217 | 1086 | 112 | 151 | 0549 |
| 1679    | 0.             | 9.  | 52. | 26,4 | 17904 | 5087 | 7357 | 5252 | 868 | 902 | 1391 |
| B. 1680 | 0.             | 18. | 32. | 27,0 | 20948 | 5117 | 6543 | 4437 | 628 | 657 | 2235 |
| 1681    | 0.             | 8.  | 43. | 51,8 | 23978 | 5099 | 5683 | 8602 | 385 | 408 | 3077 |
| 1682    | 1.             | 17. | 23. | 52,4 | 27022 | 5129 | 4868 | 7789 | 145 | 162 | 3922 |
| 1683    | 1.             | 7.  | 35. | 17,1 | 30051 | 5111 | 4008 | 1954 | 902 | 913 | 4764 |
| B. 1684 | 1.             | 16. | 15. | 17,7 | 33095 | 5142 | 3193 | 1139 | 662 | 668 | 5609 |
| 1685    | 1.             | 6.  | 26. | 42,4 | 124   | 5124 | 2333 | 5305 | 418 | 419 | 6451 |
| 1686    | 0.             | 20. | 38. | 7,1  | 3154  | 5105 | 1475 | 9470 | 175 | 170 | 7291 |
| 1687    | 0.             | 10. | 49. | 31,8 | 6184  | 5087 | 0616 | 3635 | 931 | 920 | 8132 |
| B. 1688 | 0.             | 19. | 29. | 32,5 | 9228  | 5117 | 9801 | 2820 | 691 | 675 | 8976 |
| 1689    | 0.             | 9.  | 40. | 57,2 | 12257 | 5099 | 8943 | 6985 | 448 | 426 | 9817 |
| 1690    | 1.             | 18. | 20. | 57,8 | 15286 | 5081 | 8082 | 1151 | 204 | 177 | 0659 |
| 1691    | 1.             | 8.  | 32. | 22,6 | 18330 | 5111 | 7266 | 0337 | 965 | 931 | 1505 |
| B. 1692 | 1.             | 17. | 12. | 23,3 | 21374 | 5141 | 6449 | 9523 | 725 | 687 | 2353 |
| 1693    | 1.             | 7.  | 23. | 48,0 | 24404 | 5123 | 5588 | 3689 | 433 | 437 | 3196 |
| 1694    | 0.             | 21. | 35. | 12,7 | 27433 | 5105 | 4727 | 7855 | 238 | 188 | 4039 |
| 1695    | 0.             | 11. | 46. | 37,4 | 30462 | 5086 | 3867 | 2021 | 994 | 939 | 4880 |
| B. 1696 | 0.             | 20. | 26. | 38,0 | 33506 | 5117 | 3052 | 1207 | 754 | 693 | 5726 |
| 1697    | 0.             | 10. | 38. | 2,7  | 537   | 5098 | 2193 | 5372 | 511 | 444 | 6566 |
| 1698    | 0.             | 5.  | 49. | 27,4 | 3566  | 5080 | 1334 | 9536 | 267 | 195 | 7407 |
| 1699    | 1.             | 5.  | 29. | 28,1 | 6609  | 5110 | 0521 | 8721 | 028 | 949 | 8250 |



TABLE VIII. *Epochs of the mean Conjunctions of the first Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C     | F   | G   | H    |
|---------|----------------|-----|-----|------|-------|------|------|-------|-----|-----|------|
|         | D.             | H.  | M.  | s.   |       |      |      |       |     |     |      |
| 1700    | O.             | 23. | 40. | 52,8 | 9639  | 5092 | 9662 | 2886. | 784 | 700 | 9091 |
| 1701    | O.             | 13. | 52. | 17,5 | 12668 | 5074 | 8803 | 7052  | 541 | 451 | 9933 |
| 1702    | O.             | 4.  | 3.  | 42,2 | 15698 | 5056 | 7941 | 1218  | 297 | 202 | 0776 |
| 1703    | I.             | 12. | 43. | 42,9 | 18742 | 5086 | 7125 | 0404  | 057 | 957 | 1622 |
| B. 1704 | O.             | 2.  | 55. | 7,6  | 21771 | 5068 | 6263 | 4571  | 814 | 707 | 2466 |
| 1705    | I.             | 11. | 35. | 8,3  | 24815 | 5098 | 5447 | 3757  | 574 | 462 | 3313 |
| 1706    | I.             | 1.  | 46. | 33,0 | 27844 | 5080 | 4588 | 7922  | 330 | 213 | 4153 |
| 1707    | O.             | 15. | 57. | 57,7 | 30874 | 5061 | 3729 | 2087  | 087 | 964 | 4994 |
| 1708    | I.             | 0.  | 37. | 58,4 | 33918 | 5092 | 2915 | 1272  | 847 | 718 | 5838 |
| 1709    | O.             | 14. | 49. | 23,1 | 947   | 5073 | 2055 | 5437  | 604 | 469 | 6680 |
| 1710    | O.             | 5.  | 0.  | 47,8 | 3974  | 5055 | 1196 | 9602  | 360 | 220 | 7519 |
| 1711    | I.             | 13. | 40. | 48,5 | 7020  | 5085 | 0381 | 8788  | 120 | 975 | 8366 |
| 1712    | O.             | 3.  | 52. | 13,1 | 10050 | 5067 | 9520 | 2954  | 877 | 726 | 9208 |
| 1713    | I.             | 12. | 32. | 13,8 | 13094 | 5097 | 8704 | 2140  | 637 | 480 | 0055 |
| 1714    | I.             | 2.  | 43. | 38,5 | 16123 | 5079 | 7843 | 6306  | 393 | 231 | 0897 |
| 1715    | O.             | 16. | 55. | 3,2  | 19152 | 5061 | 6981 | 0473  | 150 | 982 | 1741 |
| 1716    | I.             | 1   | 35. | 3,8  | 22196 | 5091 | 6166 | 9658  | 910 | 736 | 2586 |
| 1717    | O.             | 15. | 46. | 28,6 | 25225 | 5072 | 5306 | 3824  | 667 | 487 | 3428 |
| 1718    | O.             | 5.  | 57. | 53,3 | 28254 | 5054 | 4448 | 7989  | 423 | 238 | 4268 |
| 1719    | I.             | 14. | 37. | 53,9 | 31299 | 5084 | 3633 | 7174  | 183 | 993 | 5113 |
| B. 1720 | O.             | 4.  | 49. | 18,7 | 34328 | 5066 | 2775 | 1339  | 940 | 744 | 5953 |
| 1721    | I.             | 13. | 29. | 19,3 | 1373  | 5096 | 1960 | 0524  | 700 | 498 | 6798 |
| 1722    | I.             | 3.  | 40. | 44,0 | 4402  | 5078 | 1100 | 4690  | 456 | 249 | 7640 |
| 1723    | O.             | 17. | 52. | 8,8  | 7431  | 5060 | 0240 | 8855  | 213 | 000 | 8482 |
| B. 1724 | I.             | 2.  | 32. | 9,3  | 10475 | 5090 | 9423 | 8042  | 973 | 755 | 9329 |
| 1725    | O.             | 16. | 43. | 34,0 | 13504 | 5071 | 8563 | 2207  | 729 | 505 | 0171 |
| 1726    | O.             | 6.  | 54. | 58,8 | 16534 | 5053 | 7702 | 6373  | 486 | 256 | 1013 |
| 1727    | I.             | 15. | 34. | 59,4 | 19578 | 5083 | 6888 | 5559  | 246 | 011 | 1858 |
| 1728    | O.             | 5.  | 46. | 24,1 | 22607 | 5065 | 6029 | 9724  | 003 | 762 | 2698 |
| 1729    | I.             | 14. | 26. | 24,8 | 25651 | 5095 | 5214 | 8909  | 763 | 516 | 3544 |
| 1730    | I.             | 4.  | 37. | 49,5 | 28680 | 5077 | 4355 | 3074  | 519 | 267 | 4385 |
| 1731    | O.             | 18. | 49. | 14,2 | 31709 | 5059 | 3495 | 7240  | 276 | 018 | 5226 |
| 1732    | I.             | 3.  | 29. | 14,9 | 34754 | 5089 | 2680 | 6425  | 036 | 773 | 6072 |
| 1733    | O.             | 17. | 40. | 39,6 | 1783  | 5071 | 1820 | 0591  | 792 | 523 | 6913 |
| 1734    | O.             | 7.  | 52. | 4,3  | 4813  | 5052 | 0959 | 4757  | 549 | 274 | 7756 |
| 1735    | I.             | 16. | 32. | 5,0  | 7857  | 5082 | 0144 | 3942  | 309 | 029 | 8601 |
| 1736    | O.             | 6.  | 43. | 29,7 | 10886 | 5064 | 9283 | 8109  | 066 | 780 | 9444 |
| 1737    | I.             | 15. | 23. | 30,4 | 13930 | 5094 | 8468 | 7294  | 826 | 534 | 0289 |
| 1738    | I.             | 5.  | 34. | 55,1 | 16959 | 5076 | 7608 | 1459  | 582 | 285 | 1131 |
| 1739    | O.             | 19. | 46. | 19,8 | 19988 | 5058 | 9750 | 5624  | 339 | 037 | 1971 |



TABLE VIII. *Epochs of the mean Conjunctions of the first Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | F   | G   | H    |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |
| B. 1740 | I.             | 4.  | 26. | 20,5 | 23033 | 5088 | 5934 | 4810 | 099 | 791 | 2817 |
| 1741    | O.             | 18. | 37. | 45,1 | 26061 | 5070 | 5075 | 8976 | 855 | 542 | 3658 |
| 1742    | O.             | 8.  | 49. | 9,8  | 29090 | 5051 | 4215 | 3141 | 612 | 292 | 4500 |
| 1743    | I.             | 17. | 29. | 10,5 | 32134 | 5081 | 3400 | 2326 | 372 | 047 | 5345 |
| B. 1744 | O.             | 7.  | 40. | 35,2 | 35163 | 5063 | 2540 | 6492 | 129 | 798 | 6187 |
| 1745    | I.             | 16. | 20. | 35,8 | 2207  | 5094 | 1724 | 5678 | 889 | 552 | 7031 |
| 1746    | I.             | 6.  | 32. | 0,6  | 5236  | 5075 | 0867 | 9842 | 645 | 303 | 7872 |
| 1747    | O.             | 20. | 43. | 25,3 | 8265  | 5057 | 0008 | 4007 | 402 | 054 | 8712 |
| B. 1748 | I.             | 5.  | 23. | 26,0 | 11309 | 5087 | 9194 | 3192 | 162 | 809 | 9557 |
| 1749    | O.             | 19. | 34. | 50,7 | 14339 | 5069 | 8334 | 7358 | 918 | 560 | 0398 |
| 1750    | O.             | 9.  | 46. | 15,4 | 17368 | 5051 | 7474 | 1523 | 675 | 311 | 1240 |
| 1751    | O.             | 18. | 26. | 16,0 | 20397 | 5032 | 6613 | 5690 | 431 | 061 | 2083 |
| B. 1752 | O.             | 8.  | 37. | 40,8 | 23442 | 5062 | 5796 | 4876 | 192 | 816 | 2930 |
| 1753    | I.             | 17. | 17. | 41,5 | 26486 | 5092 | 4979 | 4062 | 952 | 571 | 3776 |
| 1754    | I.             | 7.  | 29. | 6,1  | 29515 | 5074 | 4118 | 8229 | 708 | 321 | 4620 |
| 1755    | O.             | 21. | 40. | 30,9 | 32544 | 5056 | 3258 | 2394 | 465 | 072 | 5462 |
| B. 1756 | I.             | 6.  | 20. | 31,5 | 35588 | 5086 | 2444 | 1579 | 225 | 827 | 6306 |
| 1757    | O.             | 20. | 31. | 56,2 | 2618  | 5068 | 1585 | 5744 | 981 | 578 | 7147 |
| 1758    | O.             | 10. | 43. | 21,0 | 5647  | 5050 | 0728 | 9909 | 738 | 329 | 7986 |
| 1759    | O.             | 0.  | 54. | 45,7 | 8676  | 5031 | 9869 | 4074 | 494 | 079 | 8827 |
| B. 1760 | O.             | 9.  | 34. | 46,1 | 11720 | 5062 | 9055 | 3259 | 255 | 834 | 9674 |
| 1761    | I.             | 18. | 14. | 47,0 | 14764 | 5092 | 8239 | 2446 | 011 | 585 | 0518 |
| 1762    | I.             | 8.  | 26. | 11,6 | 17794 | 5074 | 7377 | 6611 | 771 | 339 | 1360 |
| 1763    | O.             | 22. | 37. | 36,3 | 20823 | 5055 | 6516 | 0777 | 528 | 090 | 2204 |
| B. 1764 | I.             | 7.  | 17. | 37,0 | 23867 | 5085 | 5698 | 9964 | 288 | 845 | 3051 |
| 1765    | O.             | 21. | 29. | 1,7  | 26896 | 5067 | 4839 | 4129 | 044 | 596 | 3893 |
| 1766    | O.             | 11. | 40. | 26,4 | 29925 | 5049 | 3980 | 8294 | 801 | 347 | 4733 |
| 1767    | O.             | 1.  | 51. | 51,1 | 32954 | 5031 | 3121 | 2459 | 557 | 098 | 5574 |
| B. 1768 | O.             | 10. | 31. | 51,8 | 35998 | 5061 | 2307 | 1645 | 317 | 852 | 6418 |
| 1769    | O.             | 0.  | 43. | 16,5 | 3028  | 5042 | 1448 | 5810 | 074 | 603 | 7259 |
| 1770    | I.             | 9.  | 23. | 17,2 | 6072  | 5073 | 0633 | 4995 | 834 | 358 | 8104 |
| 1771    | O.             | 23. | 34. | 41,9 | 9101  | 5054 | 9773 | 9161 | 591 | 108 | 8946 |
| B. 1772 | I.             | 8.  | 14. | 42,6 | 12145 | 5084 | 8957 | 8347 | 351 | 863 | 9793 |
| 1773    | O.             | 22. | 26. | 7,3  | 15174 | 5066 | 8096 | 2513 | 107 | 614 | 0634 |
| 1774    | O.             | 12. | 37. | 32,0 | 18203 | 5047 | 7234 | 6679 | 864 | 365 | 1479 |
| 1775    | O.             | 2.  | 48. | 56,7 | 21233 | 5029 | 6374 | 0845 | 620 | 116 | 2321 |
| B. 1776 | O.             | 11. | 28. | 57,4 | 24276 | 5059 | 5558 | 0031 | 380 | 870 | 3167 |
| 1777    | O.             | 1.  | 40. | 22,1 | 27306 | 5041 | 4700 | 4196 | 137 | 621 | 4006 |
| 1778    | I.             | 10. | 20. | 22,8 | 30350 | 5071 | 3884 | 3381 | 897 | 376 | 4853 |
| 1779    | I.             | 0.  | 31. | 47,5 | 33379 | 5053 | 3027 | 7546 | 654 | 127 | 5692 |



TABLE VIII. *Epochs of the mean Conjunctions of the first Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | F   | G   | H    |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |
| B. 1780 | I.             | 9.  | 11. | 48,1 | 424   | 5083 | 2211 | 6732 | 414 | 881 | 6538 |
| 1781    | O.             | 23. | 23. | 12,9 | 3454  | 5065 | 1354 | 0897 | 170 | 632 | 7378 |
| 1782    | O.             | 13. | 34. | 37,5 | 6484  | 5046 | 0492 | 5062 | 927 | 383 | 8225 |
| 1783    | O.             | 3.  | 46. | 2,2  | 9514  | 5028 | 9631 | 9228 | 683 | 134 | 9063 |
| B. 1784 | O.             | 12. | 26. | 2,9  | 12558 | 5058 | 8816 | 8414 | 443 | 888 | 9909 |
| 1785    | O.             | 2.  | 37. | 27,6 | 15587 | 5040 | 7955 | 2580 | 200 | 639 | 0751 |
| 1786    | I.             | 11. | 17. | 28,2 | 18631 | 5070 | 7140 | 1766 | 960 | 394 | 1597 |
| 1787    | I.             | 1.  | 28. | 53,0 | 21661 | 5052 | 6280 | 5931 | 717 | 145 | 2438 |
| B. 1788 | I.             | 10. | 8.  | 53,7 | 24704 | 5082 | 5466 | 5116 | 477 | 899 | 3283 |
| 1789    | I.             | 0.  | 20. | 18,3 | 27734 | 5064 | 4606 | 9282 | 233 | 650 | 4124 |
| 1790    | O.             | 14. | 31. | 43,0 | 30763 | 5045 | 3747 | 3447 | 990 | 401 | 4965 |
| 1791    | O.             | 4.  | 43. | 7,8  | 33792 | 5027 | 2887 | 7612 | 746 | 152 | 5806 |
| B. 1792 | O.             | 13. | 23. | 8,4  | 836   | 5057 | 2072 | 6798 | 506 | 906 | 6653 |
| 1793    | O.             | 3.  | 34. | 33,1 | 3865  | 5039 | 1212 | 0963 | 263 | 657 | 7493 |
| 1794    | I.             | 12. | 14. | 33,8 | 6909  | 5069 | 0396 | 0150 | 023 | 412 | 8340 |
| 1795    | I.             | 2.  | 25. | 58,5 | 9939  | 5051 | 9536 | 4315 | 780 | 163 | 9182 |
| B. 1796 | I.             | 11. | 5.  | 59,2 | 12982 | 5081 | 8721 | 3501 | 540 | 917 | 0027 |
| 1797    | I.             | 1.  | 17. | 23,9 | 16011 | 5063 | 7861 | 7666 | 296 | 668 | 0869 |
| 1798    | O.             | 15. | 28. | 48,6 | 19041 | 5044 | 7002 | 1832 | 053 | 419 | 1710 |
| 1799    | O.             | 5.  | 40. | 13,3 | 22070 | 5026 | 6142 | 5997 | 809 | 170 | 2552 |
| 1800    | I.             | 14. | 20. | 13,9 | 25114 | 5056 | 5326 | 5183 | 569 | 924 | 3397 |
| 1801    | I.             | 4.  | 31. | 38,6 | 28142 | 5038 | 4467 | 9348 | 326 | 675 | 4239 |
| 1802    | O.             | 18. | 43. | 3,3  | 31172 | 5020 | 3607 | 3514 | 082 | 426 | 5080 |
| 1803    | O.             | 8.  | 54. | 28,1 | 34201 | 5002 | 2747 | 7679 | 839 | 177 | 5922 |
| B. 1804 | O.             | 17. | 34. | 28,7 | 1245  | 5032 | 1932 | 6865 | 599 | 932 | 6767 |
| 1805    | O.             | 7.  | 45. | 53,4 | 4274  | 5013 | 1073 | 1030 | 355 | 683 | 7608 |
| 1806    | I.             | 16. | 25. | 54,1 | 7318  | 5045 | 0260 | 0214 | 116 | 437 | 8451 |
| 1807    | I.             | 6.  | 37. | 18,8 | 10347 | 5027 | 9401 | 4379 | 872 | 188 | 9292 |
| B. 1808 | I.             | 15. | 17. | 19,5 | 13392 | 5057 | 8587 | 3564 | 632 | 942 | 0136 |
| 1809    | I.             | 5.  | 28. | 44,2 | 16422 | 5039 | 7727 | 7730 | 389 | 693 | 0978 |
| 1810    | O.             | 19. | 40. | 8,9  | 19450 | 5020 | 6866 | 1896 | 145 | 444 | 1820 |
| 1811    | O.             | 9.  | 51. | 33,6 | 22479 | 5002 | 6005 | 6062 | 902 | 195 | 2664 |
| B. 1812 | O.             | 18. | 31. | 34,3 | 25523 | 5032 | 5187 | 5249 | 662 | 950 | 3511 |
| 1813    | O.             | 8.  | 42. | 59,0 | 28552 | 5014 | 4327 | 9415 | 418 | 701 | 4354 |
| 1814    | I.             | 17. | 22. | 59,7 | 31596 | 5044 | 3511 | 8601 | 175 | 451 | 5200 |
| 1815    | I.             | 7.  | 34. | 24,4 | 34625 | 5026 | 2652 | 2766 | 935 | 206 | 6041 |
| B. 1816 | I.             | 16. | 14. | 25,0 | 1669  | 5056 | 1837 | 1951 | 695 | 961 | 6886 |
| 1817    | I.             | 6.  | 25. | 49,8 | 4699  | 5038 | 0979 | 6116 | 452 | 711 | 7726 |
| 1818    | O.             | 20. | 37. | 14,4 | 7728  | 5019 | 0121 | 0281 | 208 | 462 | 8565 |
| 1819    | O.             | 10. | 48. | 39,1 | 10757 | 5001 | 9263 | 4445 | 965 | 213 | 9405 |
| 1820    | O.             | 19. | 26. | 39,8 | 13801 | 5031 | 8449 | 3630 | 725 | 968 | 0250 |



TABLE IX. Revolutions of the first Satellite for Months.

| MONTHS                  | D.  | H.  | M.  | S.   | A   | S    | B    | C    | F   | G   | H   |
|-------------------------|-----|-----|-----|------|-----|------|------|------|-----|-----|-----|
| January.                | 1.  | 18. | 28. | 35,9 | 15  | 48   | 44   | 5020 | 4   | 4   | 4   |
|                         | 3.  | 12. | 57. | 11,9 | 29  | 97   | 88   | 0040 | 7   | 7   | 8   |
|                         | 5.  | 7.  | 25. | 47,8 | 44  | 145  | 133  | 5061 | 11  | 11  | 12  |
|                         | 7.  | 1.  | 54. | 23,8 | 59  | 194  | 177  | 0081 | 15  | 15  | 16  |
|                         | 8.  | 20. | 22. | 59,7 | 74  | 242  | 222  | 5101 | 18  | 18  | 20  |
|                         | 10. | 14. | 51. | 35,7 | 88  | 291  | 266  | 0121 | 22  | 22  | 25  |
|                         | 12. | 9.  | 20. | 11,6 | 103 | 339  | 311  | 5142 | 26  | 26  | 29  |
|                         | 14. | 3.  | 48. | 47,6 | 118 | 388  | 355  | 0162 | 29  | 29  | 33  |
|                         | 15. | 22. | 17. | 23,5 | 132 | 436  | 399  | 5182 | 33  | 33  | 37  |
|                         | 17. | 16. | 45. | 59,4 | 147 | 485  | 444  | 0202 | 37  | 36  | 41  |
|                         | 19. | 11. | 14. | 35,4 | 162 | 533  | 488  | 5222 | 40  | 40  | 45  |
|                         | 21. | 5.  | 43. | 11,3 | 176 | 581  | 532  | 0243 | 44  | 44  | 49  |
|                         | 23. | 0.  | 11. | 47,3 | 191 | 630  | 577  | 5263 | 48  | 47  | 53  |
|                         | 24. | 18. | 40. | 23,2 | 206 | 678  | 621  | 0283 | 51  | 51  | 57  |
|                         | 26. | 13. | 8.  | 59,2 | 221 | 727  | 666  | 5303 | 55  | 55  | 61  |
|                         | 28. | 7.  | 37. | 35,1 | 235 | 775  | 710  | 0324 | 59  | 58  | 65  |
|                         | 30. | 2.  | 6.  | 11,1 | 250 | 824  | 754  | 5344 | 62  | 62  | 69  |
|                         | 31. | 20. | 34. | 47,0 | 265 | 872  | 799  | 0364 | 66  | 66  | 74  |
|                         | 0.  | 20. | 34. | 47,0 | 265 | 872  | 799  | 0364 | 66  | 66  | 74  |
|                         | 2.  | 15. | 3.  | 22,9 | 279 | 921  | 843  | 5384 | 70  | 69  | 78  |
|                         | 4.  | 9.  | 31. | 58,9 | 294 | 969  | 887  | 0404 | 73  | 73  | 82  |
|                         | 6.  | 4.  | 00. | 34,8 | 309 | 1018 | 932  | 5425 | 77  | 77  | 86  |
|                         | 7.  | 22. | 29. | 10,8 | 324 | 1066 | 976  | 0445 | 81  | 80  | 90  |
|                         | 9.  | 16. | 57. | 46,7 | 338 | 1114 | 1021 | 5465 | 84  | 84  | 94  |
|                         | 11. | 11. | 26. | 22,7 | 353 | 1163 | 1065 | 0485 | 88  | 87  | 98  |
|                         | 13. | 5.  | 54. | 58,6 | 368 | 1211 | 1109 | 5506 | 92  | 91  | 102 |
|                         | 15. | 0.  | 23. | 34,6 | 382 | 1260 | 1154 | 0526 | 95  | 95  | 106 |
|                         | 16. | 18. | 52. | 10,5 | 397 | 1308 | 1198 | 5546 | 99  | 98  | 110 |
|                         | 18. | 13. | 20. | 46,4 | 412 | 1357 | 1242 | 0566 | 103 | 102 | 114 |
|                         | 20. | 7.  | 49. | 22,4 | 426 | 1405 | 1287 | 5586 | 106 | 106 | 119 |
|                         | 22. | 2.  | 17. | 58,3 | 441 | 1454 | 1331 | 0607 | 110 | 109 | 123 |
|                         | 23. | 20. | 46. | 34,3 | 456 | 1502 | 1375 | 5627 | 114 | 113 | 127 |
|                         | 25. | 15. | 15. | 10,2 | 471 | 1551 | 1420 | 0647 | 118 | 116 | 131 |
|                         | 27. | 9.  | 43. | 46,2 | 485 | 1599 | 1464 | 5667 | 121 | 120 | 135 |
|                         | 29. | 4.  | 12. | 22,1 | 500 | 1647 | 1509 | 0687 | 125 | 124 | 139 |
| February. {<br>March. { | 1.  | 4.  | 12. | 22,1 | 500 | 1647 | 1509 | 0687 | 125 | 124 | 139 |
|                         | 2.  | 22. | 40. | 58,1 | 515 | 1696 | 1553 | 5708 | 129 | 128 | 143 |
|                         | 4.  | 17. | 9.  | 34,0 | 529 | 1744 | 1597 | 0728 | 132 | 131 | 147 |
|                         | 6.  | 11. | 38. | 9,9  | 544 | 1793 | 1642 | 5748 | 136 | 135 | 151 |
|                         | 8.  | 6.  | 6.  | 45,9 | 559 | 1841 | 1686 | 0768 | 140 | 139 | 155 |
|                         | 10. | 0.  | 35. | 21,8 | 573 | 1890 | 1730 | 5789 | 143 | 142 | 159 |
|                         | 11. | 19. | 3.  | 57,8 | 588 | 1938 | 1775 | 0809 | 147 | 146 | 163 |

In Leap Year, add 1 to the Day of the Month in January and February.



TABLE IX. Revolutions of the first Satellite for Months.

| MONTHS.          | D.  | H.  | M.  | S.   | A    | S    | B    | C     | F   | G   | H   |
|------------------|-----|-----|-----|------|------|------|------|-------|-----|-----|-----|
| March.           | 13. | 13. | 32. | 33,7 | 603  | 1987 | 1819 | 5829  | 151 | 149 | 168 |
|                  | 15. | 8.  | 1.  | 9,7  | 618  | 2035 | 1864 | 0849  | 154 | 153 | 172 |
|                  | 17. | 2.  | 29. | 45,6 | 632  | 2084 | 1908 | 5869  | 158 | 157 | 176 |
|                  | 18. | 20. | 58. | 21,6 | 647  | 2132 | 1952 | 0890  | 162 | 160 | 180 |
|                  | 20. | 15. | 26. | 57,5 | 662  | 2180 | 1997 | 5910  | 165 | 164 | 184 |
|                  | 22. | 9.  | 55. | 33,4 | 676  | 2229 | 2041 | 0930  | 169 | 168 | 188 |
| March.<br>April. | 24. | 4.  | 24. | 9,4  | 691  | 2277 | 2085 | 5950  | 173 | 171 | 192 |
|                  | 25. | 22. | 52. | 45,3 | 706  | 2326 | 2130 | 0971  | 176 | 175 | 196 |
|                  | 27. | 17. | 21. | 21,3 | 721  | 2374 | 2174 | 5991  | 180 | 179 | 200 |
|                  | 29. | 11. | 49. | 57,2 | 735  | 2423 | 2219 | 1011  | 184 | 182 | 204 |
|                  | 31. | 6.  | 18. | 33,2 | 750  | 2471 | 2263 | 6031  | 187 | 186 | 208 |
|                  | 2.  | 0.  | 47. | 9,2  | 765  | 2520 | 2307 | 1051  | 191 | 190 | 213 |
|                  | 3.  | 19. | 15. | 45,2 | 779  | 2568 | 2352 | 6072  | 195 | 193 | 217 |
|                  | 5.  | 13. | 44. | 21,1 | 794  | 2617 | 2396 | 1092  | 198 | 197 | 221 |
|                  | 7.  | 8.  | 12. | 57,0 | 809  | 2665 | 2440 | 6112  | 202 | 200 | 225 |
|                  | 9.  | 2.  | 41. | 33,0 | 823  | 2713 | 2485 | 1132  | 206 | 204 | 229 |
|                  | 10. | 21. | 10. | 8,9  | 838  | 2762 | 2529 | 6153  | 209 | 208 | 233 |
|                  | 12. | 15. | 38. | 44,9 | 853  | 2810 | 2573 | 1173  | 213 | 211 | 237 |
|                  | 14. | 10. | 7.  | 20,8 | 868  | 2859 | 2618 | 6193  | 217 | 215 | 241 |
|                  | 16. | 4.  | 35. | 56,8 | 882  | 2907 | 2662 | 1213  | 220 | 219 | 245 |
|                  | 17. | 23. | 4.  | 32,7 | 897  | 2956 | 2707 | 6233  | 224 | 222 | 249 |
|                  | 19. | 17. | 33. | 8,7  | 912  | 3004 | 2751 | 1254  | 228 | 226 | 253 |
|                  | 21. | 12. | 1.  | 44,6 | 926  | 3053 | 2795 | 6274  | 231 | 230 | 257 |
|                  | 23. | 6.  | 30. | 20,5 | 941  | 3101 | 2840 | 1294  | 235 | 233 | 262 |
|                  | 25. | 0.  | 58. | 56,5 | 956  | 3150 | 2884 | 6314  | 239 | 237 | 266 |
|                  | 26. | 19. | 27. | 32,4 | 971  | 3198 | 2928 | 1335  | 242 | 241 | 270 |
|                  | 28. | 13. | 56. | 8,4  | 985  | 3246 | 2973 | 6355  | 246 | 244 | 274 |
| April.<br>May. { | 30. | 8.  | 24. | 44,3 | 1000 | 3295 | 3017 | 1375. | 250 | 248 | 278 |
|                  | 0.  | 8.  | 24. | 44,3 | 1000 | 3295 | 3017 | 1375. | 250 | 248 | 278 |
|                  | 2.  | 2.  | 53. | 20,3 | 1015 | 3343 | 3062 | 6395  | 253 | 252 | 282 |
|                  | 3.  | 21. | 21. | 56,2 | 1029 | 3391 | 3106 | 1415  | 257 | 255 | 286 |
|                  | 5.  | 15. | 50. | 32,2 | 1044 | 3440 | 3150 | 6436  | 261 | 259 | 290 |
|                  | 7.  | 10. | 19. | 8,1  | 1059 | 3489 | 3195 | 1456  | 264 | 262 | 294 |
|                  | 9.  | 4.  | 47. | 44,0 | 1073 | 3537 | 3239 | 6476  | 268 | 266 | 298 |
|                  | 10. | 23. | 16. | 20,0 | 1088 | 3586 | 3283 | 1496  | 272 | 270 | 302 |
|                  | 12. | 17. | 44. | 55,9 | 1103 | 3634 | 3328 | 6517  | 275 | 273 | 307 |
|                  | 14. | 12. | 13. | 31,9 | 1118 | 3683 | 3372 | 1537  | 279 | 277 | 311 |
|                  | 16. | 6.  | 42. | 7,8  | 1132 | 3731 | 3416 | 6557  | 283 | 281 | 315 |
|                  | 18. | 1.  | 10. | 43,8 | 1147 | 3779 | 3461 | 1577  | 286 | 284 | 319 |
|                  | 19. | 19. | 39. | 19,7 | 1162 | 3828 | 3505 | 6597  | 290 | 288 | 323 |
|                  | 21. | 14. | 7.  | 55,7 | 1176 | 3876 | 3550 | 1618  | 294 | 292 | 327 |
|                  | 23. | 8.  | 36. | 31,6 | 1191 | 3925 | 3594 | 6638  | 297 | 295 | 331 |







TABLE IX. Revolutions of the first Satellite for Months.

| MONTHS.                | D.  | H.  | M.  | S.   | A    | S    | B    | C    | F   | G   | H   |
|------------------------|-----|-----|-----|------|------|------|------|------|-----|-----|-----|
| August.                | 7.  | 11. | 6.  | 17,2 | 1823 | 6006 | 5502 | 2507 | 455 | 452 | 507 |
|                        | 9.  | 5.  | 34. | 53,2 | 1838 | 6057 | 5546 | 7528 | 459 | 456 | 511 |
|                        | 11. | 0.  | 3.  | 29,1 | 1853 | 6105 | 5591 | 2548 | 463 | 459 | 515 |
|                        | 12. | 18. | 32. | 5,0  | 1868 | 6154 | 5635 | 7568 | 466 | 463 | 519 |
|                        | 14. | 13. | 0.  | 41,0 | 1882 | 6202 | 5679 | 2588 | 470 | 467 | 523 |
|                        | 16. | 7.  | 29. | 16,9 | 1897 | 6251 | 5724 | 7608 | 474 | 470 | 527 |
|                        | 18. | 1.  | 57. | 52,9 | 1912 | 6299 | 5768 | 2629 | 477 | 474 | 531 |
|                        | 19. | 20. | 26. | 28,8 | 1926 | 6348 | 5812 | 7649 | 481 | 478 | 535 |
|                        | 21. | 14. | 55. | 4,8  | 1941 | 6396 | 5857 | 2669 | 485 | 481 | 539 |
|                        | 23. | 9.  | 23. | 40,7 | 1956 | 6445 | 5901 | 7689 | 488 | 485 | 544 |
|                        | 25. | 3.  | 52. | 16,7 | 1971 | 6493 | 5946 | 2710 | 492 | 488 | 548 |
|                        | 26. | 22. | 20. | 52,6 | 1985 | 6541 | 5990 | 7730 | 496 | 492 | 552 |
| August.<br>September.  | 28. | 16. | 49. | 28,5 | 2000 | 6590 | 6034 | 2750 | 499 | 496 | 556 |
|                        | 30. | 11. | 18. | 4,5  | 2015 | 6638 | 6079 | 7770 | 503 | 499 | 560 |
|                        | 1.  | 5.  | 46. | 40,4 | 2029 | 6687 | 6123 | 2790 | 507 | 503 | 564 |
|                        | 3.  | 0.  | 15. | 16,4 | 2044 | 6735 | 6167 | 7811 | 510 | 507 | 568 |
|                        | 4.  | 18. | 43. | 52,3 | 2059 | 6784 | 6212 | 2831 | 514 | 510 | 572 |
|                        | 6.  | 13. | 12. | 28,3 | 2073 | 6832 | 6256 | 7851 | 518 | 514 | 576 |
|                        | 8.  | 7.  | 41. | 4,2  | 2088 | 6881 | 6301 | 2871 | 521 | 518 | 580 |
|                        | 10. | 2.  | 9.  | 40,2 | 2103 | 6929 | 6345 | 7892 | 525 | 521 | 584 |
|                        | 11. | 20. | 38. | 16,1 | 2118 | 6978 | 6389 | 2912 | 529 | 525 | 589 |
|                        | 13. | 15. | 6.  | 52,0 | 2132 | 7026 | 6434 | 7932 | 532 | 529 | 593 |
|                        | 15. | 9.  | 35. | 28,0 | 2147 | 7074 | 6478 | 2952 | 536 | 532 | 597 |
|                        | 17. | 4.  | 4.  | 3,9  | 2162 | 7123 | 6522 | 7972 | 540 | 536 | 601 |
|                        | 18. | 22. | 32. | 39,9 | 2176 | 7171 | 6567 | 2993 | 544 | 539 | 605 |
|                        | 20. | 17. | 1.  | 15,8 | 2191 | 7220 | 6611 | 8013 | 547 | 543 | 609 |
|                        | 22. | 11. | 29. | 51,8 | 2206 | 7268 | 6655 | 3033 | 551 | 547 | 613 |
| September.<br>October. | 24. | 5.  | 58. | 27,7 | 2220 | 7317 | 6700 | 8053 | 555 | 550 | 617 |
|                        | 26. | 0.  | 27. | 3,7  | 2235 | 7365 | 6744 | 3074 | 558 | 554 | 621 |
|                        | 27. | 18. | 55. | 39,6 | 2250 | 7414 | 6789 | 8094 | 562 | 558 | 625 |
|                        | 29. | 13. | 24. | 15,5 | 2265 | 7462 | 6833 | 3114 | 566 | 561 | 629 |
|                        | 1.  | 7.  | 52. | 51,5 | 2279 | 7511 | 6877 | 8134 | 569 | 565 | 633 |
|                        | 3.  | 2.  | 21. | 27,5 | 2294 | 7559 | 6922 | 3154 | 573 | 569 | 638 |
|                        | 4.  | 20. | 50. | 3,5  | 2309 | 7607 | 6966 | 8175 | 577 | 572 | 642 |
|                        | 6.  | 15. | 18. | 39,4 | 2323 | 7656 | 7010 | 3195 | 580 | 576 | 646 |
|                        | 8.  | 9.  | 47. | 15,4 | 2338 | 7704 | 7055 | 8215 | 584 | 580 | 650 |
|                        | 10. | 4.  | 15. | 51,3 | 2353 | 7753 | 7099 | 3235 | 588 | 583 | 654 |
|                        | 11. | 22. | 44. | 27,3 | 2367 | 7801 | 7144 | 8256 | 591 | 587 | 658 |
|                        | 13. | 17. | 13. | 3,3  | 2382 | 7850 | 7188 | 3276 | 595 | 591 | 662 |
|                        | 15. | 11. | 41. | 39,1 | 2397 | 7898 | 7232 | 8296 | 599 | 594 | 666 |
|                        | 17. | 6.  | 10. | 15,1 | 2412 | 7947 | 7277 | 3316 | 602 | 598 | 670 |
|                        | 19. | 0.  | 38. | 51,0 | 2426 | 7995 | 7321 | 8336 | 606 | 601 | 674 |



TABLE IX. Revolutions of the first Satellite for Months.

| MONTHS.                | D.  | H.  | M.  | S.   | A    | S    | B    | C    | F   | G   | H   |
|------------------------|-----|-----|-----|------|------|------|------|------|-----|-----|-----|
| October.               | 20. | 19. | 7.  | 27,0 | 2441 | 8044 | 7305 | 3357 | 610 | 605 | 678 |
|                        | 22. | 13. | 36. | 2,9  | 2456 | 8092 | 7410 | 8377 | 613 | 609 | 683 |
|                        | 24. | 8.  | 4.  | 38,9 | 2470 | 8140 | 7454 | 3397 | 617 | 612 | 687 |
|                        | 26. | 2.  | 33. | 14,8 | 2485 | 8189 | 7499 | 8417 | 621 | 616 | 691 |
|                        | 27. | 21. | 1.  | 50,8 | 2500 | 8237 | 7543 | 3438 | 624 | 620 | 695 |
|                        | 29. | 15. | 30. | 26,7 | 2515 | 8286 | 7587 | 8458 | 628 | 623 | 699 |
| October.<br>November.  | 31. | 9.  | 59. | 2,6  | 2529 | 8334 | 7632 | 3478 | 632 | 627 | 703 |
|                        | 2.  | 4.  | 27. | 38,6 | 2544 | 8383 | 7676 | 8498 | 635 | 631 | 708 |
|                        | 3.  | 22. | 56. | 14,5 | 2559 | 8431 | 7720 | 3518 | 639 | 634 | 711 |
|                        | 5.  | 17. | 24. | 50,5 | 2573 | 8480 | 7765 | 8539 | 643 | 638 | 715 |
|                        | 7.  | 11. | 53. | 26,4 | 2588 | 8528 | 7809 | 3559 | 646 | 642 | 719 |
|                        | 9.  | 6.  | 22. | 2,4  | 2603 | 8577 | 7853 | 8579 | 650 | 646 | 723 |
|                        | 11. | 0.  | 50. | 38,3 | 2617 | 8625 | 7898 | 3599 | 654 | 649 | 727 |
|                        | 12. | 19. | 19. | 14,3 | 2632 | 8673 | 7942 | 8619 | 657 | 652 | 731 |
|                        | 14. | 13. | 47. | 50,2 | 2647 | 8722 | 7987 | 3640 | 661 | 656 | 736 |
|                        | 16. | 8.  | 16. | 26,1 | 2662 | 8770 | 8031 | 8660 | 665 | 660 | 740 |
|                        | 18. | 2.  | 45. | 2,1  | 2677 | 8819 | 8075 | 3680 | 668 | 663 | 744 |
|                        | 19. | 21. | 13. | 38,0 | 2691 | 8867 | 8120 | 8700 | 672 | 667 | 748 |
|                        | 21. | 15. | 42. | 14,0 | 2706 | 8916 | 8164 | 3721 | 676 | 671 | 752 |
|                        | 23. | 10. | 10. | 49,9 | 2720 | 8964 | 8208 | 8741 | 679 | 674 | 756 |
|                        | 25. | 4.  | 39. | 25,9 | 2735 | 9013 | 8253 | 3761 | 683 | 678 | 760 |
|                        | 26. | 23. | 8.  | 1,8  | 2750 | 9061 | 8297 | 8781 | 687 | 682 | 764 |
|                        | 28. | 17. | 36. | 37,8 | 2765 | 9110 | 8342 | 3801 | 690 | 685 | 768 |
|                        | 30. | 12. | 5.  | 13,7 | 2779 | 9158 | 8386 | 8822 | 694 | 689 | 772 |
| November.<br>December. | 2.  | 6.  | 33. | 49,6 | 2794 | 9206 | 8430 | 3842 | 698 | 693 | 777 |
|                        | 4.  | 1.  | 2.  | 25,6 | 2809 | 9255 | 8475 | 8862 | 701 | 696 | 781 |
|                        | 5.  | 19. | 31. | 1,5  | 2823 | 9303 | 8519 | 3882 | 705 | 700 | 785 |
|                        | 7.  | 13. | 59. | 37,5 | 2838 | 9352 | 8563 | 8903 | 709 | 704 | 789 |
|                        | 9.  | 8.  | 28. | 13,4 | 2853 | 9400 | 8608 | 3923 | 713 | 707 | 793 |
|                        | 11. | 2.  | 56. | 49,4 | 2867 | 9449 | 8652 | 8943 | 716 | 711 | 797 |
|                        | 12. | 21. | 25. | 25,3 | 2882 | 9497 | 8697 | 3963 | 720 | 714 | 801 |
|                        | 14. | 15. | 54. | 1,3  | 2897 | 9546 | 8741 | 8983 | 723 | 718 | 805 |
|                        | 16. | 10. | 22. | 37,2 | 2912 | 9594 | 8785 | 4004 | 727 | 722 | 809 |
|                        | 18. | 4.  | 51. | 13,1 | 2926 | 9643 | 8830 | 9024 | 731 | 725 | 813 |
|                        | 19. | 23. | 19. | 49,1 | 2941 | 9691 | 8874 | 4044 | 734 | 729 | 817 |
|                        | 21. | 17. | 48. | 25,0 | 2956 | 9739 | 8918 | 9064 | 738 | 733 | 821 |
| December.<br>January.  | 23. | 12. | 17. | 1,0  | 2970 | 9788 | 8963 | 4085 | 742 | 736 | 826 |
|                        | 25. | 6.  | 45. | 36,9 | 2985 | 9836 | 9007 | 9105 | 745 | 740 | 830 |
|                        | 27. | 1.  | 14. | 12,9 | 3000 | 9885 | 9051 | 4125 | 749 | 744 | 834 |
|                        | 28. | 19. | 42. | 48,8 | 3015 | 9933 | 9096 | 9145 | 753 | 747 | 838 |
|                        | 30. | 14. | 11. | 24,8 | 3029 | 9982 | 9140 | 4165 | 756 | 751 | 842 |
|                        | 1.  | 8.  | 40. | 0,7  | 3044 | 0030 | 9185 | 9186 | 760 | 755 | 846 |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
| M. S.   | SEC.    |       | M. S.   | SEC.    |       | M. S.   | SEC.    |       |
| 1660, 0 | 2. 57,7 | 2,2   | 1668, 0 | 3. 31,5 | 3,3   | 1676, 0 | 3. 33,3 | 2,0   |
| 2       | 2. 55,5 | 1,9   | 2       | 3. 28,2 | 3,5   | 2       | 3. 35,3 | 1,6   |
| 4       | 2. 53,6 | 1,6   | 4       | 3. 24,7 | 3,6   | 4       | 3. 36,9 | 1,4   |
| 6       | 2. 52,0 | 1,4   | 6       | 3. 21,1 | 3,5   | 6       | 3. 38,3 | 1,2   |
| 8       | 2. 50,6 | 1,1   | 8       | 3. 17,6 | 3,4   | 8       | 3. 39,5 | 0,9   |
| 1661, 0 | 2. 49,5 | 0,2   | 1669, 0 | 3. 14,2 | 3,3   | 1677, 0 | 3. 40,4 | 0,3   |
| 2       | 2. 49,3 | 0,1   | 2       | 3. 10,9 | 3,2   | 2       | 3. 40,7 | 0,1   |
| 4       | 2. 49,2 | 0,3   | 4       | 3. 7,7  | 3,2   | 4       | 3. 40,8 | 0,1   |
| 6       | 2. 49,5 | 0,7   | 6       | 3. 4,5  | 3,0   | 6       | 3. 40,7 | 0,5   |
| 8       | 2. 50,2 | 1,1   | 8       | 3. 1,5  | 2,6   | 8       | 3. 40,2 | 0,8   |
| 1662, 0 | 2. 51,3 | 1,8   | 1670, 0 | 2. 58,9 | 2,3   | 1678, 0 | 3. 39,4 | 1,2   |
| 2       | 2. 53,1 | 2,0   | 2       | 2. 56,6 | 1,9   | 2       | 3. 38,2 | 1,3   |
| 4       | 2. 55,1 | 2,4   | 4       | 2. 54,7 | 2,0   | 4       | 3. 36,9 | 1,4   |
| 6       | 2. 57,5 | 2,8   | 6       | 2. 52,7 | 1,6   | 6       | 3. 35,5 | 1,7   |
| 8       | 3. 0,3  | 3,1   | 8       | 2. 51,1 | 1,2   | 8       | 3. 33,8 | 1,9   |
| 1663, 0 | 3. 3,4  | 3,4   | 1671, 0 | 2. 49,9 | 0,6   | 1679, 0 | 3. 31,9 | 2,1   |
| 2       | 3. 6,8  | 3,4   | 2       | 2. 49,3 | 0,5   | 2       | 3. 29,8 | 2,0   |
| 4       | 3. 10,2 | 3,7   | 4       | 2. 48,8 | 0,3   | 4       | 3. 27,8 | 2,0   |
| 6       | 3. 13,9 | 3,8   | 6       | 2. 48,5 | 0,1   | 6       | 3. 25,8 | 2,0   |
| 8       | 3. 17,7 | 4,0   | 8       | 2. 48,6 | 0,3   | 8       | 3. 23,8 | 1,9   |
| 1664, 0 | 3. 21,7 | 3,7   | 1672, 0 | 2. 48,9 | 0,6   | 1680, 0 | 3. 21,9 | 1,7   |
| 2       | 3. 25,4 | 3,5   | 2       | 2. 49,5 | 1,0   | 2       | 3. 20,2 | 1,5   |
| 4       | 3. 28,9 | 3,5   | 4       | 2. 50,5 | 1,3   | 4       | 3. 18,9 | 1,2   |
| 6       | 3. 32,4 | 3,5   | 6       | 2. 51,8 | 1,4   | 6       | 3. 17,7 | 1,0   |
| 8       | 3. 35,9 | 3,4   | 8       | 2. 53,2 | 1,6   | 8       | 3. 16,7 | 0,8   |
| 1665, 0 | 3. 39,3 | 2,8   | 1673, 0 | 2. 54,8 | 2,0   | 1681, 0 | 3. 15,9 | 0,7   |
| 2       | 3. 42,1 | 2,1   | 2       | 2. 56,8 | 2,3   | 2       | 3. 15,2 | 0,2   |
| 4       | 3. 44,2 | 1,6   | 4       | 2. 59,1 | 2,3   | 4       | 3. 15,0 | 0,0   |
| 6       | 3. 45,8 | 1,2   | 6       | 3. 1,4  | 2,4   | 6       | 3. 15,0 | 0,1   |
| 8       | 3. 47,0 | 0,8   | 8       | 3. 3,8  | 2,6   | 8       | 3. 15,1 | 0,2   |
| 1666, 0 | 3. 47,8 | 0,2   | 1674, 0 | 3. 6,4  | 2,6   | 1682, 0 | 3. 15,3 | 0,6   |
| 2       | 3. 48,0 | 0,2   | 2       | 3. 9,0  | 2,9   | 2       | 3. 15,9 | 0,6   |
| 4       | 3. 47,8 | 0,6   | 4       | 3. 11,9 | 2,9   | 4       | 3. 16,5 | 0,5   |
| 6       | 3. 47,2 | 1,0   | 6       | 3. 14,8 | 3,0   | 6       | 3. 17,0 | 0,6   |
| 8       | 3. 46,2 | 1,6   | 8       | 3. 17,8 | 3,0   | 8       | 3. 17,6 | 0,8   |
| 1667, 0 | 3. 44,6 | 2,1   | 1675, 0 | 3. 20,8 | 2,6   | 1683, 0 | 3. 18,4 | 0,9   |
| 2       | 3. 42,5 | 2,3   | 2       | 3. 23,4 | 2,7   | 2       | 3. 19,3 | 0,6   |
| 4       | 3. 40,2 | 2,6   | 4       | 3. 26,1 | 2,6   | 4       | 3. 19,9 | 0,3   |
| 6       | 3. 37,6 | 3,0   | 6       | 3. 28,7 | 2,4   | 6       | 3. 20,2 | 0,1   |
| 8       | 3. 34,6 | 3,1   | 8       | 3. 31,1 | 2,2   | 8       | 3. 20,3 | 0,2   |
| 1668, 0 | 3. 31,5 |       | 1676, 0 | 3. 33,3 |       | 1684, 0 | 3. 20,1 |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1684, 0 | 3.     | 20,1 |       |  | 1692, 0 | 3.     | 8,9  |       |  | 1700, 0 | 2.     | 44,0 |       |
| 2       | 3.     | 19,7 | 0,4   |  | 2       | 3.     | 13,9 | 5,0   |  | 2       | 2.     | 42,4 | 1,6   |
| 4       | 3.     | 19,2 | 0,5   |  | 4       | 3.     | 18,8 | 4,9   |  | 4       | 2.     | 41,6 | 0,8   |
| 6       | 3.     | 18,6 | 0,6   |  | 6       | 3.     | 23,6 | 4,8   |  | 6       | 2.     | 41,5 | 0,1   |
| 8       | 3.     | 17,7 | 0,9   |  | 8       | 3.     | 28,2 | 4,6   |  | 8       | 2.     | 42,0 | 0,5   |
|         |        |      | 1,4   |  |         |        |      | 4,3   |  |         |        |      | 0,9   |
| 1685, 0 | 3.     | 16,3 |       |  | 1693, 0 | 3.     | 32,5 |       |  | 1701, 0 | 2.     | 42,9 |       |
| 2       | 3.     | 14,6 | 1,7   |  | 2       | 3.     | 36,8 | 4,3   |  | 2       | 2.     | 44,8 | 1,9   |
| 4       | 3.     | 12,6 | 2,0   |  | 4       | 3.     | 41,0 | 4,2   |  | 4       | 2.     | 47,4 | 2,6   |
| 6       | 3.     | 10,3 | 2,3   |  | 6       | 3.     | 44,8 | 3,8   |  | 6       | 2.     | 50,6 | 3,2   |
| 8       | 3.     | 7,7  | 2,6   |  | 8       | 3.     | 48,2 | 3,4   |  | 8       | 2.     | 54,4 | 3,8   |
|         |        |      | 2,7   |  |         |        |      | 2,8   |  |         |        |      | 4,0   |
| 1686, 0 | 3.     | 5,0  |       |  | 1694, 0 | 3.     | 51,0 |       |  | 1702, 0 | 2.     | 58,4 |       |
| 2       | 3.     | 2,1  | 2,9   |  | 2       | 3.     | 53,1 | 2,1   |  | 2       | 3.     | 3,2  | 4,8   |
| 4       | 2.     | 59,1 | 3,0   |  | 4       | 3.     | 54,7 | 1,6   |  | 4       | 3.     | 8,4  | 5,2   |
| 6       | 2.     | 55,9 | 3,2   |  | 6       | 3.     | 55,9 | 1,2   |  | 6       | 3.     | 13,6 | 5,2   |
| 8       | 2.     | 52,6 | 3,3   |  | 8       | 3.     | 56,5 | 0,6   |  | 8       | 3.     | 18,9 | 5,3   |
|         |        |      | 3,4   |  |         |        |      | 0,2   |  |         |        |      | 5,4   |
| 1687, 0 | 2.     | 49,2 |       |  | 1695, 0 | 3.     | 56,7 |       |  | 1703, 0 | 3.     | 24,3 |       |
| 2       | 2.     | 45,8 | 3,4   |  | 2       | 3.     | 56,3 | 0,4   |  | 2       | 3.     | 29,7 | 5,4   |
| 4       | 2.     | 42,5 | 3,3   |  | 4       | 3.     | 55,3 | 1,0   |  | 4       | 3.     | 35,0 | 5,3   |
| 6       | 2.     | 39,5 | 3,0   |  | 6       | 3.     | 53,9 | 1,4   |  | 6       | 3.     | 40,0 | 5,0   |
| 8       | 2.     | 36,5 | 3,0   |  | 8       | 3.     | 52,3 | 1,6   |  | 8       | 3.     | 44,5 | 4,5   |
|         |        |      | 2,6   |  |         |        |      | 1,8   |  |         |        |      | 3,8   |
| 1688, 0 | 2.     | 33,9 |       |  | 1696, 0 | 3.     | 50,5 |       |  | 1704, 0 | 3.     | 48,3 |       |
| 2       | 2.     | 31,4 | 2,5   |  | 2       | 3.     | 48,2 | 2,3   |  | 2       | 3.     | 52,0 | 3,7   |
| 4       | 2.     | 29,4 | 2,0   |  | 4       | 3.     | 45,7 | 2,5   |  | 4       | 3.     | 55,1 | 3,1   |
| 6       | 2.     | 27,6 | 1,8   |  | 6       | 3.     | 43,0 | 2,7   |  | 6       | 3.     | 57,5 | 2,4   |
| 8       | 2.     | 26,3 | 1,3   |  | 8       | 3.     | 40,1 | 2,9   |  | 8       | 3.     | 59,4 | 1,9   |
|         |        |      | 1,0   |  |         |        |      | 3,5   |  |         |        |      | 1,0   |
| 1689, 0 | 2.     | 25,3 |       |  | 1697, 0 | 3.     | 36,6 |       |  | 1705, 0 | 4.     | 0,4  |       |
| 2       | 2.     | 25,0 | 0,3   |  | 2       | 3.     | 32,6 | 4,0   |  | 2       | 4.     | 0,7  | 0,3   |
| 4       | 2.     | 25,3 | 0,3   |  | 4       | 3.     | 28,8 | 3,8   |  | 4       | 4.     | 0,7  | 0,0   |
| 6       | 2.     | 25,9 | 0,6   |  | 6       | 3.     | 25,0 | 3,8   |  | 6       | 4.     | 0,2  | 0,5   |
| 8       | 2.     | 27,0 | 1,1   |  | 8       | 3.     | 21,2 | 3,8   |  | 8       | 3.     | 59,1 | 1,1   |
|         |        |      | 1,6   |  |         |        |      | 3,8   |  |         |        |      | 1,4   |
| 1690, 0 | 2.     | 28,6 |       |  | 1698, 0 | 3.     | 17,4 |       |  | 1706, 0 | 3.     | 57,7 |       |
| 2       | 2.     | 31,0 | 2,4   |  | 2       | 3.     | 13,2 | 4,2   |  | 2       | 3.     | 55,9 | 1,8   |
| 4       | 2.     | 33,9 | 2,9   |  | 4       | 3.     | 8,9  | 4,3   |  | 4       | 3.     | 53,4 | 2,5   |
| 6       | 2.     | 37,2 | 3,3   |  | 6       | 3.     | 4,7  | 4,2   |  | 6       | 3.     | 50,5 | 2,9   |
| 8       | 2.     | 40,8 | 3,6   |  | 8       | 3.     | 0,9  | 3,8   |  | 8       | 3.     | 47,5 | 3,0   |
|         |        |      | 4,1   |  |         |        |      | 3,7   |  |         |        |      | 3,1   |
| 1691, 0 | 2.     | 44,9 |       |  | 1699, 0 | 2.     | 57,2 |       |  | 1707, 0 | 3.     | 44,4 |       |
| 2       | 2.     | 49,3 | 4,4   |  | 2       | 2.     | 54,1 | 3,1   |  | 2       | 3.     | 41,8 | 2,6   |
| 4       | 2.     | 54,0 | 4,7   |  | 4       | 2.     | 51,1 | 3,0   |  | 4       | 3.     | 38,8 | 3,0   |
| 6       | 2.     | 58,8 | 4,8   |  | 6       | 2.     | 48,3 | 2,8   |  | 6       | 3.     | 35,8 | 3,0   |
| 8       | 3.     | 3,7  | 4,9   |  | 8       | 2.     | 45,9 | 2,4   |  | 8       | 3.     | 32,8 | 3,0   |
|         |        |      | 5,2   |  |         |        |      | 1,9   |  |         |        |      | 3,0   |
| 1692, 0 | 3.     | 8,9  |       |  | 1700, 0 | 2.     | 44,0 |       |  | 1708, 0 | 3.     | 29,8 |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
|         | M. S.   | SEC.  |         | M. S.   | SEC.  |         | M. S.   | SEC.  |
| 1708, 0 | 3. 29,8 |       | 1716, 0 | 4. 23,5 |       | 1724, 0 | 3. 59,3 |       |
| 2       | 3. 26,7 | 3,1   | 2       | 4. 23,3 | 0,2   | 2       | 4. 2,4  | 3,1   |
| 4       | 3. 23,8 | 2,9   | 4       | 4. 22,7 | 0,6   | 4       | 4. 5,3  | 2,9   |
| 6       | 3. 21,1 | 2,7   | 6       | 4. 21,5 | 1,2   | 6       | 4. 7,9  | 2,6   |
| 8       | 3. 18,5 | 2,6   | 8       | 4. 19,8 | 1,7   | 8       | 4. 10,2 | 2,3   |
|         |         | 2,4   |         |         | 1,5   |         |         | 2,3   |
| 1709, 0 | 3. 16,1 |       | 1717, 0 | 4. 18,3 |       | 1725, 0 | 4. 12,5 |       |
| 2       | 3. 14,0 | 2,1   | 2       | 4. 15,9 | 2,4   | 2       | 4. 14,1 | 1,6   |
| 4       | 3. 12,1 | 1,9   | 4       | 4. 13,2 | 2,7   | 4       | 4. 15,4 | 1,3   |
| 6       | 3. 10,5 | 1,6   | 6       | 4. 10,4 | 2,8   | 6       | 4. 16,4 | 1,0   |
| 8       | 3. 9,2  | 1,3   | 8       | 4. 7,5  | 2,9   | 8       | 4. 17,0 | 0,6   |
|         |         | 1,3   |         |         | 2,9   |         |         | 0,2   |
| 1710, 0 | 3. 7,9  |       | 1718, 0 | 4. 4,6  |       | 1726, 0 | 4. 17,2 |       |
| 2       | 3. 7,1  | 0,8   | 2       | 4. 1,5  | 3,1   | 2       | 4. 17,1 | 0,1   |
| 4       | 3. 6,6  | 0,5   | 4       | 3. 58,3 | 3,2   | 4       | 4. 10,4 | 0,7   |
| 6       | 3. 6,4  | 0,2   | 6       | 3. 54,9 | 3,4   | 6       | 4. 15,2 | 1,2   |
| 8       | 3. 6,6  | 0,2   | 8       | 3. 51,5 | 3,4   | 8       | 4. 13,9 | 1,3   |
|         |         | 0,6   |         |         | 3,2   |         |         | 1,5   |
| 1711, 0 | 3. 7,2  |       | 1719, 0 | 3. 48,3 |       | 1727, 0 | 4. 12,4 |       |
| 2       | 3. 8,3  | 1,1   | 2       | 3. 45,2 | 3,1   | 2       | 4. 10,5 | 1,9   |
| 4       | 3. 9,7  | 1,4   | 4       | 3. 42,4 | 2,8   | 4       | 4. 8,3  | 2,2   |
| 6       | 3. 11,7 | 2,0   | 6       | 3. 39,8 | 2,6   | 6       | 4. 5,9  | 2,4   |
| 8       | 3. 13,9 | 2,2   | 8       | 3. 37,4 | 2,4   | 8       | 4. 3,5  | 2,4   |
|         |         | 2,4   |         |         | 2,2   |         |         | 2,4   |
| 1712, 0 | 3. 16,3 |       | 1720, 0 | 3. 35,2 |       | 1728, 0 | 4. 1,1  |       |
| 2       | 3. 19,3 | 3,0   | 2       | 3. 33,1 | 2,1   | 2       | 3. 58,7 | 2,4   |
| 4       | 3. 23,0 | 3,7   | 4       | 3. 31,5 | 1,6   | 4       | 3. 56,2 | 2,5   |
| 6       | 3. 27,0 | 4,0   | 6       | 3. 30,1 | 1,4   | 6       | 3. 53,3 | 2,9   |
| 8       | 3. 31,2 | 4,2   | 8       | 3. 29,1 | 1,0   | 8       | 3. 50,6 | 2,7   |
|         |         | 4,3   |         |         | 0,7   |         |         | 2,5   |
| 1713, 0 | 3. 35,5 |       | 1721, 0 | 3. 28,4 |       | 1729, 0 | 3. 48,1 |       |
| 2       | 3. 40,1 | 4,6   | 2       | 3. 28,6 | 0,2   | 2       | 3. 45,7 | 2,4   |
| 4       | 3. 44,7 | 4,6   | 4       | 3. 28,8 | 0,2   | 4       | 3. 43,5 | 2,2   |
| 6       | 3. 49,3 | 4,6   | 6       | 3. 29,3 | 0,5   | 6       | 3. 41,6 | 1,9   |
| 8       | 3. 53,8 | 4,5   | 8       | 3. 30,3 | 1,0   | 8       | 3. 39,8 | 1,8   |
|         |         | 4,4   |         |         | 1,3   |         |         | 1,7   |
| 1714, 0 | 3. 58,2 |       | 1722, 0 | 3. 31,6 |       | 1730, 0 | 3. 38,1 |       |
| 2       | 4. 2,7  | 4,5   | 2       | 3. 33,4 | 1,8   | 2       | 3. 36,6 | 1,5   |
| 4       | 4. 6,7  | 4,0   | 4       | 3. 35,5 | 2,1   | 4       | 3. 35,1 | 1,5   |
| 6       | 4. 10,4 | 3,7   | 6       | 3. 38,0 | 2,5   | 6       | 3. 33,8 | 1,3   |
| 8       | 4. 13,6 | 3,2   | 8       | 3. 40,7 | 2,7   | 8       | 3. 32,8 | 1,0   |
|         |         | 2,9   |         |         | 2,8   |         |         | 0,7   |
| 1715, 0 | 4. 16,5 |       | 1723, 0 | 3. 43,5 |       | 1731, 0 | 3. 32,1 |       |
| 2       | 4. 18,8 | 2,3   | 2       | 3. 46,6 | 3,1   | 2       | 3. 31,9 | 0,2   |
| 4       | 4. 20,6 | 1,8   | 4       | 3. 49,7 | 3,1   | 4       | 3. 31,7 | 0,2   |
| 6       | 4. 22,1 | 1,5   | 6       | 3. 52,9 | 3,2   | 6       | 3. 31,7 | 0,0   |
| 8       | 4. 23,1 | 1,0   | 8       | 3. 56,1 | 3,2   | 8       | 3. 32,0 | 0,3   |
|         |         | 0,4   |         |         | 3,2   |         |         | 0,3   |
| 1716, 0 | 4. 23,5 |       | 1724, 0 | 3. 59,3 |       | 1732, 0 | 3. 32,3 |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
|         | M. S.   | SEC.  |         | M. S.   | SEC.  |         | M. S.   | SEC.  |
| 1732, 0 | 3. 32,3 | 0,6   | 1740, 0 | 3. 52,2 | 0,4   | 1648, 0 | 2. 50,7 | 2,3   |
| 2       | 3. 32,9 | 1,0   | 2       | 3. 51,8 | 0,3   | 2       | 2. 48,4 | 1,9   |
| 4       | 3. 33,9 | 1,1   | 4       | 3. 51,5 | 0,1   | 4       | 2. 46,5 | 1,2   |
| 6       | 3. 35,0 | 1,3   | 6       | 3. 51,4 | 0,2   | 6       | 2. 45,3 | 0,8   |
| 8       | 3. 36,3 | 1,7   | 8       | 3. 51,6 | 0,3   | 8       | 2. 44,5 | 0,3   |
| 1733, 0 | 3. 38,0 | 1,5   | 1741, 0 | 3. 51,9 | 0,5   | 1749, 0 | 2. 44,2 | 0,7   |
| 2       | 3. 39,5 | 1,5   | 2       | 3. 52,4 | 0,6   | 2       | 2. 44,9 | 1,1   |
| 4       | 3. 41,0 | 1,6   | 4       | 3. 53,0 | 0,8   | 4       | 2. 46,0 | 1,9   |
| 6       | 3. 42,6 | 1,9   | 6       | 3. 53,8 | 0,9   | 6       | 2. 47,9 | 2,4   |
| 8       | 3. 44,5 | 2,1   | 8       | 3. 54,7 | 0,8   | 8       | 2. 50,3 | 3,0   |
| 1734, 0 | 3. 46,6 | 2,0   | 1742, 0 | 3. 55,5 | 0,9   | 1750, 0 | 2. 53,3 | 3,7   |
| 2       | 3. 48,6 | 2,2   | 2       | 3. 56,4 | 1,0   | 2       | 2. 57,0 | 4,2   |
| 4       | 3. 50,8 | 2,1   | 4       | 3. 57,4 | 0,8   | 4       | 3. 1,2  | 4,6   |
| 6       | 3. 52,9 | 2,1   | 6       | 3. 58,2 | 0,5   | 6       | 3. 5,8  | 5,1   |
| 8       | 3. 55,0 | 2,0   | 8       | 3. 58,7 | 0,3   | 8       | 3. 10,9 | 5,3   |
| 1735, 0 | 3. 57,0 | 1,8   | 1743, 0 | 3. 59,0 | 0,2   | 1751, 0 | 3. 16,2 | 5,9   |
| 2       | 3. 58,8 | 1,6   | 2       | 3. 59,2 | 0,1   | 2       | 3. 22,1 | 5,8   |
| 4       | 4. 0,4  | 1,4   | 4       | 3. 59,1 | 0,4   | 4       | 3. 27,9 | 5,9   |
| 6       | 4. 1,8  | 1,1   | 6       | 3. 58,7 | 0,6   | 6       | 3. 33,8 | 5,8   |
| 8       | 4. 2,9  | 1,1   | 8       | 3. 58,1 | 0,8   | 8       | 3. 39,6 | 5,9   |
| 1736, 0 | 4. 4,0  | 1,0   | 1744, 0 | 3. 57,3 | 1,3   | 1752, 0 | 3. 45,5 | 6,0   |
| 2       | 4. 5,0  | 0,6   | 2       | 3. 56,0 | 1,8   | 2       | 3. 51,5 | 5,4   |
| 4       | 4. 5,6  | 0,4   | 4       | 3. 54,2 | 2,2   | 4       | 3. 56,9 | 5,0   |
| 6       | 4. 6,0  | 0,2   | 6       | 3. 52,0 | 2,3   | 6       | 4. 1,9  | 4,8   |
| 8       | 4. 6,2  | 0,2   | 8       | 3. 49,7 | 2,3   | 8       | 4. 6,7  | 4,3   |
| 1737, 0 | 4. 6,0  | 0,4   | 1745, 0 | 3. 47,4 | 3,2   | 1753, 0 | 4. 11,0 | 3,9   |
| 2       | 4. 5,6  | 0,7   | 2       | 3. 44,2 | 3,7   | 2       | 4. 14,9 | 3,3   |
| 4       | 4. 4,9  | 0,8   | 4       | 3. 40,5 | 3,6   | 4       | 4. 18,2 | 2,8   |
| 6       | 4. 4,1  | 0,9   | 6       | 3. 36,9 | 3,8   | 6       | 4. 21,0 | 2,3   |
| 8       | 4. 3,2  | 1,0   | 8       | 3. 33,1 | 3,8   | 8       | 4. 23,3 | 1,8   |
| 1738, 0 | 4. 2,2  | 1,2   | 1746, 0 | 3. 29,3 | 4,2   | 1754, 0 | 4. 25,1 | 1,1   |
| 2       | 4. 1,0  | 1,3   | 2       | 3. 25,1 | 4,5   | 2       | 4. 26,2 | 0,7   |
| 4       | 3. 59,7 | 1,2   | 4       | 3. 20,6 | 4,2   | 4       | 4. 26,9 | 0,2   |
| 6       | 3. 58,5 | 1,1   | 6       | 3. 16,4 | 4,1   | 6       | 4. 27,1 | 0,3   |
| 8       | 3. 57,4 | 1,1   | 8       | 3. 12,3 | 4,0   | 8       | 4. 26,8 | 0,8   |
| 1739, 0 | 3. 56,3 | 1,1   | 1747, 0 | 3. 8,3  | 4,1   | 1755, 0 | 4. 26,0 | 1,1   |
| 2       | 3. 55,2 | 1,0   | 2       | 3. 4,2  | 3,9   | 2       | 4. 24,9 | 1,7   |
| 4       | 3. 54,2 | 0,8   | 4       | 3. 0,3  | 3,4   | 4       | 4. 23,2 | 2,1   |
| 6       | 3. 53,4 | 0,7   | 6       | 2. 56,9 | 3,3   | 6       | 4. 21,1 | 2,6   |
| 8       | 3. 52,7 | 0,5   | 8       | 2. 53,6 | 2,9   | 8       | 4. 18,5 | 2,8   |
| 1740, 0 | 3. 52,2 |       | 1748, 0 | 2. 50,7 |       | 1756, 0 | 4. 15,7 |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
| M. S.   | SEC.    |       | M. S.   | SEC.    |       | M. S.   | SEC.    |       |
| 1756, 0 | 4. 15,7 | 3,5   | 1764, 0 | 4. 14,3 | 2,9   | 1772, 0 | 3. 35,0 | 3,6   |
| 2       | 4. 12,2 | 3,6   | 2       | 4. 17,2 | 2,2   | 2       | 3. 38,6 | 3,9   |
| 4       | 4. 8,6  | 3,8   | 4       | 4. 19,4 | 1,5   | 4       | 3. 42,5 | 4,1   |
| 6       | 4. 4,8  | 4,1   | 6       | 4. 20,9 | 0,9   | 6       | 3. 46,6 | 4,4   |
| 8       | 4. 0,7  | 4,3   | 8       | 4. 21,8 | 0,2   | 8       | 3. 51,0 | 4,9   |
| 1757, 0 | 3. 56,4 | 4,5   | 1765, 0 | 4. 22,0 | 0,4   | 1773, 0 | 3. 55,9 | 4,8   |
| 2       | 3. 51,9 | 4,6   | 2       | 4. 21,6 | 1,0   | 2       | 4. 0,7  | 4,7   |
| 4       | 3. 47,3 | 4,8   | 4       | 4. 20,6 | 1,4   | 4       | 4. 5,4  | 4,5   |
| 6       | 3. 42,5 | 4,9   | 6       | 4. 19,2 | 1,7   | 6       | 4. 9,9  | 4,5   |
| 8       | 3. 37,6 | 4,9   | 8       | 4. 17,5 | 2,2   | 8       | 4. 14,4 | 4,3   |
| 1758, 0 | 3. 32,7 | 5,0   | 1766, 0 | 4. 15,3 | 2,4   | 1774, 0 | 4. 18,7 | 4,0   |
| 2       | 3. 27,7 | 4,9   | 2       | 4. 12,9 | 2,8   | 2       | 4. 22,7 | 3,5   |
| 4       | 3. 22,8 | 4,8   | 4       | 4. 10,1 | 2,9   | 4       | 4. 26,2 | 3,1   |
| 6       | 3. 18,0 | 4,4   | 6       | 4. 7,2  | 3,1   | 6       | 4. 29,3 | 2,8   |
| 8       | 3. 13,6 | 4,0   | 8       | 4. 4,1  | 3,3   | 8       | 4. 32,1 | 2,4   |
| 1759, 0 | 3. 9,6  | 3,5   | 1767, 0 | 4. 0,8  | 3,0   | 1775, 0 | 4. 34,5 | 1,6   |
| 2       | 3. 6,1  | 3,1   | 2       | 3. 57,8 | 3,3   | 2       | 4. 36,1 | 1,1   |
| 4       | 3. 3,0  | 2,4   | 4       | 3. 54,5 | 3,2   | 4       | 4. 37,2 | 0,6   |
| 6       | 3. 0,6  | 2,0   | 6       | 3. 51,3 | 3,2   | 6       | 4. 37,8 | 0,2   |
| 8       | 2. 58,6 | 1,4   | 8       | 3. 48,1 | 3,1   | 8       | 4. 38,0 | 0,1   |
| 1760, 0 | 2. 57,2 | 0,6   | 1768, 0 | 3. 45,0 | 3,1   | 1776, 0 | 4. 37,9 | 0,7   |
| 2       | 2. 56,6 | 0,1   | 2       | 3. 41,9 | 2,9   | 2       | 4. 37,2 | 0,9   |
| 4       | 2. 56,7 | 0,7   | 4       | 3. 39,0 | 2,6   | 4       | 4. 36,3 | 1,3   |
| 6       | 2. 57,4 | 1,6   | 6       | 3. 36,4 | 2,5   | 6       | 4. 35,0 | 1,5   |
| 8       | 2. 59,0 | 2,3   | 8       | 3. 33,9 | 2,5   | 8       | 4. 33,5 | 2,2   |
| 1761, 0 | 3. 1,3  | 3,3   | 1769, 0 | 3. 31,4 | 2,4   | 1777, 0 | 4. 31,3 | 2,3   |
| 2       | 3. 4,6  | 4,0   | 2       | 3. 29,0 | 2,1   | 2       | 4. 29,0 | 2,6   |
| 4       | 3. 8,6  | 4,6   | 4       | 3. 26,9 | 1,8   | 4       | 4. 26,4 | 2,8   |
| 6       | 3. 13,2 | 5,1   | 6       | 3. 25,1 | 1,4   | 6       | 4. 23,6 | 3,0   |
| 8       | 3. 18,3 | 5,3   | 8       | 3. 23,7 | 1,2   | 8       | 4. 20,6 | 3,1   |
| 1762, 0 | 3. 23,6 | 5,5   | 1770, 0 | 3. 22,5 | 0,6   | 1778, 0 | 4. 17,5 | 3,2   |
| 2       | 3. 29,1 | 5,6   | 2       | 3. 21,9 | 0,4   | 2       | 4. 14,3 | 3,4   |
| 4       | 3. 34,7 | 5,6   | 4       | 3. 21,5 | 0,1   | 4       | 4. 10,9 | 3,0   |
| 6       | 3. 40,3 | 5,8   | 6       | 3. 21,6 | 0,4   | 6       | 4. 7,9  | 3,1   |
| 8       | 3. 46,1 | 5,7   | 8       | 3. 22,0 | 0,8   | 8       | 4. 4,8  | 2,9   |
| 1763, 0 | 3. 51,8 | 5,5   | 1771, 0 | 3. 22,8 | 1,5   | 1779, 0 | 4. 1,9  | 2,7   |
| 2       | 3. 57,3 | 5,1   | 2       | 3. 24,3 | 2,0   | 2       | 3. 59,2 | 2,7   |
| 4       | 4. 2,4  | 4,4   | 4       | 3. 26,3 | 2,5   | 4       | 3. 50,5 | 2,5   |
| 6       | 4. 6,8  | 4,1   | 6       | 3. 28,8 | 2,8   | 6       | 3. 54,0 | 2,4   |
| 8       | 4. 10,9 | 3,4   | 8       | 3. 31,6 | 3,4   | 8       | 3. 51,6 | 1,9   |
| 1764, 0 | 4. 14,3 |       | 1772, 0 | 3. 35,0 |       | 1780, 0 | 3. 49,7 |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1780, 0 | 3.     | 49,7 |       |  | 1788, 0 | 4.     | 11,5 | 2,1   |  | 1796, 0 | 4.     | 9,8  |       |
| 2       | 3.     | 48,0 | 1,7   |  | 2       | 4.     | 9,4  | 2,0   |  | 2       | 4.     | 9,8  | 0,0   |
| 4       | 3.     | 46,8 | 1,2   |  | 4       | 4.     | 7,4  | 1,9   |  | 4       | 4.     | 9,7  | 0,1   |
| 6       | 3.     | 45,8 | 1,0   |  | 6       | 4.     | 5,5  | 2,0   |  | 6       | 4.     | 9,6  | 0,1   |
| 8       | 3.     | 44,9 | 0,9   |  | 8       | 4.     | 3,5  | 2,0   |  | 8       | 4.     | 9,5  | 0,1   |
|         |        |      | 0,3   |  |         |        |      | 2,0   |  |         |        |      | 0,8   |
| 1781, 0 | 3.     | 44,6 |       |  | 1789, 0 | 4.     | 1,5  | 1,6   |  | 1797, 0 | 4.     | 8,7  |       |
| 2       | 3.     | 44,8 | 0,2   |  | 2       | 3.     | 59,9 | 1,4   |  | 2       | 4.     | 7,9  | 0,8   |
| 4       | 3.     | 45,5 | 0,7   |  | 4       | 3.     | 58,5 | 1,2   |  | 4       | 4.     | 7,0  | 0,9   |
| 6       | 3.     | 46,4 | 0,9   |  | 6       | 3.     | 57,3 | 1,1   |  | 6       | 4.     | 6,1  | 0,9   |
| 8       | 3.     | 47,4 | 1,0   |  | 8       | 3.     | 56,2 | 1,1   |  | 8       | 4.     | 5,3  | 0,8   |
|         |        |      | 1,3   |  |         |        |      | 1,0   |  |         |        |      | 0,7   |
| 1782, 0 | 3.     | 48,7 |       |  | 1790, 0 | 3.     | 55,2 | 1,1   |  | 1798, 0 | 4.     | 4,6  |       |
| 2       | 3.     | 50,4 | 1,7   |  | 2       | 3.     | 54,1 | 1,0   |  | 2       | 4.     | 3,9  | 0,7   |
| 4       | 3.     | 52,5 | 2,1   |  | 4       | 3.     | 53,1 | 0,9   |  | 4       | 4.     | 3,2  | 0,7   |
| 6       | 3.     | 54,8 | 2,3   |  | 6       | 3.     | 52,2 | 0,9   |  | 6       | 4.     | 2,6  | 0,6   |
| 8       | 3.     | 57,3 | 2,5   |  | 8       | 3.     | 51,5 | 0,7   |  | 8       | 4.     | 2,1  | 0,5   |
|         |        |      | 2,6   |  |         |        |      | 0,4   |  |         |        |      | 0,3   |
| 1783, 0 | 3.     | 59,9 |       |  | 1791, 0 | 3.     | 51,1 | 0,4   |  | 1799, 0 | 4.     | 1,8  |       |
| 2       | 4.     | 2,7  | 2,8   |  | 2       | 3.     | 50,7 | 0,2   |  | 2       | 4.     | 1,3  | 0,5   |
| 4       | 4.     | 5,5  | 2,8   |  | 4       | 3.     | 50,5 | 0,2   |  | 4       | 4.     | 1,4  | 0,1   |
| 6       | 4.     | 8,2  | 2,7   |  | 6       | 3.     | 50,7 | 0,2   |  | 6       | 4.     | 1,6  | 0,2   |
| 8       | 4.     | 11,0 | 2,8   |  | 8       | 3.     | 51,0 | 0,3   |  | 8       | 4.     | 1,8  | 0,2   |
|         |        |      | 2,6   |  |         |        |      | 0,4   |  |         |        |      | 0,5   |
| 1784, 0 | 4.     | 13,6 |       |  | 1792, 0 | 3.     | 51,4 | 0,4   |  | 1800, 0 | 4.     | 2,3  |       |
| 2       | 4.     | 16,0 | 2,4   |  | 2       | 3.     | 52,0 | 0,6   |  | 2       | 4.     | 2,9  | 0,6   |
| 4       | 4.     | 18,2 | 2,2   |  | 4       | 3.     | 52,7 | 0,7   |  | 4       | 4.     | 3,5  | 0,6   |
| 6       | 4.     | 20,1 | 1,9   |  | 6       | 3.     | 53,4 | 0,7   |  | 6       | 4.     | 4,4  | 0,9   |
| 8       | 4.     | 21,8 | 1,7   |  | 8       | 3.     | 54,3 | 0,9   |  | 8       | 4.     | 5,3  | 0,9   |
|         |        |      | 1,4   |  |         |        |      | 1,0   |  |         |        |      | 1,1   |
| 1785, 0 | 4.     | 23,2 |       |  | 1793, 0 | 3.     | 55,3 | 1,2   |  | 1801, 0 | 4.     | 6,4  |       |
| 2       | 4.     | 24,2 | 1,0   |  | 2       | 3.     | 56,5 | 1,1   |  | 2       | 4.     | 7,9  | 1,5   |
| 4       | 4.     | 24,9 | 0,7   |  | 4       | 3.     | 57,6 | 1,1   |  | 4       | 4.     | 9,0  | 1,1   |
| 6       | 4.     | 25,4 | 0,5   |  | 6       | 3.     | 58,7 | 1,1   |  | 6       | 4.     | 10,1 | 1,1   |
| 8       | 4.     | 25,5 | 0,1   |  | 8       | 4.     | 0,2  | 1,5   |  | 8       | 4.     | 11,1 | 1,0   |
|         |        |      | 0,3   |  |         |        |      | 1,4   |  |         |        |      | 1,1   |
| 1786, 0 | 4.     | 25,2 |       |  | 1794, 0 | 4.     | 1,6  | 1,3   |  | 1802, 0 | 4.     | 12,2 |       |
| 2       | 4.     | 24,7 | 0,5   |  | 2       | 4.     | 2,9  | 1,3   |  | 2       | 4.     | 12,7 | 0,5   |
| 4       | 4.     | 23,9 | 0,8   |  | 4       | 4.     | 4,1  | 1,2   |  | 4       | 4.     | 13,2 | 0,5   |
| 6       | 4.     | 22,9 | 1,0   |  | 6       | 4.     | 5,4  | 1,3   |  | 6       | 4.     | 13,5 | 0,3   |
| 8       | 4.     | 21,8 | 1,1   |  | 8       | 4.     | 6,6  | 1,2   |  | 8       | 4.     | 13,6 | 0,1   |
|         |        |      | 1,4   |  |         |        |      | 0,9   |  |         |        |      | 0,1   |
| 1787, 0 | 4.     | 20,4 |       |  | 1795, 0 | 4.     | 7,5  | 0,9   |  | 1803, 0 | 4.     | 13,5 |       |
| 2       | 4.     | 18,6 | 1,8   |  | 2       | 4.     | 8,3  | 0,8   |  | 2       | 4.     | 12,9 | 0,6   |
| 4       | 4.     | 16,8 | 1,8   |  | 4       | 4.     | 9,0  | 0,7   |  | 4       | 4.     | 12,1 | 0,8   |
| 6       | 4.     | 15,1 | 1,7   |  | 6       | 4.     | 9,5  | 0,5   |  | 6       | 4.     | 10,9 | 1,2   |
| 8       | 4.     | 13,4 | 1,7   |  | 8       | 4.     | 9,6  | 0,1   |  | 8       | 4.     | 9,3  | 1,6   |
|         |        |      | 1,9   |  |         |        |      | 0,2   |  |         |        |      | 2,1   |
| 1788, 0 | 4.     | 11,5 |       |  | 1796, 0 | 4.     | 9,8  |       |  | 1804, 0 | 4.     | 7,2  |       |



TABLE X. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1804, 0 | 4.     | 7,2  |       |  | 1812, 0 | 3.     | 59,7 |       |
| 2       | 4.     | 4,9  | 2,3   |  | 2       | 4.     | 5,1  | 5,4   |
| 4       | 4.     | 2,0  | 2,9   |  | 4       | 4.     | 10,3 | 5,2   |
| 6       | 3.     | 58,6 | 3,4   |  | 6       | 4.     | 15,1 | 4,8   |
| 8       | 3.     | 55,0 | 3,6   |  | 8       | 4.     | 19,5 | 4,4   |
|         |        |      | 3,9   |  |         |        |      | 3,9   |
| 1805, 0 | 3.     | 51,1 |       |  | 1813, 0 | 4.     | 23,4 |       |
| 2       | 3.     | 46,8 | 4,3   |  | 2       | 4.     | 26,4 | 3,0   |
| 4       | 3.     | 42,3 | 4,5   |  | 4       | 4.     | 28,7 | 2,3   |
| 6       | 3.     | 37,6 | 4,7   |  | 6       | 4.     | 30,4 | 1,7   |
| 8       | 3.     | 32,2 | 5,4   |  | 8       | 4.     | 31,7 | 1,3   |
|         |        |      | 5,5   |  |         |        |      | 0,8   |
| 1806, 0 | 3.     | 26,7 |       |  | 1814, 0 | 4.     | 32,5 |       |
| 2       | 3.     | 21,7 | 5,0   |  | 2       | 4.     | 32,9 | 0,4   |
| 4       | 3.     | 16,8 | 4,9   |  | 4       | 4.     | 32,9 | 0,0   |
| 6       | 3.     | 11,8 | 5,0   |  | 6       | 4.     | 32,1 | 0,8   |
| 8       | 3.     | 6,9  | 4,9   |  | 8       | 4.     | 30,6 | 1,5   |
|         |        |      | 4,4   |  |         |        |      | 1,8   |
| 1807, 0 | 3.     | 2,5  |       |  | 1815, 0 | 4.     | 28,8 |       |
| 2       | 2.     | 58,3 | 4,2   |  | 2       | 4.     | 26,5 | 2,3   |
| 4       | 2.     | 54,6 | 3,7   |  | 4       | 4.     | 23,7 | 2,8   |
| 6       | 2.     | 51,2 | 3,4   |  | 6       | 4.     | 20,8 | 2,9   |
| 8       | 2.     | 48,0 | 3,2   |  | 8       | 4.     | 17,6 | 3,2   |
|         |        |      | 2,5   |  |         |        |      | 3,6   |
| 1808, 0 | 2.     | 45,5 |       |  | 1816, 0 | 4.     | 14,0 |       |
| 2       | 2.     | 42,9 | 1,6   |  | 2       | 4.     | 10,1 | 3,9   |
| 4       | 2.     | 43,0 | 0,9   |  | 4       | 4.     | 5,5  | 4,6   |
| 6       | 2.     | 42,8 | 0,2   |  | 6       | 3.     | 59,9 | 5,6   |
| 8       | 2.     | 43,3 | 0,5   |  | 8       | 3.     | 54,6 | 5,3   |
|         |        |      | 1,2   |  |         |        |      | 5,2   |
| 1809, 0 | 2.     | 44,5 |       |  | 1817, 0 | 3.     | 49,4 |       |
| 2       | 2.     | 46,4 | 1,9   |  | 2       | 3.     | 43,9 | 5,5   |
| 4       | 2.     | 48,8 | 2,4   |  | 4       | 3.     | 38,4 | 5,5   |
| 6       | 2.     | 51,8 | 3,0   |  | 6       | 3.     | 32,8 | 5,6   |
| 8       | 2.     | 55,7 | 3,9   |  | 8       | 3.     | 27,3 | 5,5   |
|         |        |      | 4,3   |  |         |        |      | 5,7   |
| 1810, 0 | 3.     | 0,0  |       |  | 1818, 0 | 3.     | 21,6 |       |
| 2       | 3.     | 5,0  | 5,0   |  | 2       | 3.     | 16,2 | 5,4   |
| 4       | 3.     | 10,4 | 5,4   |  | 4       | 3.     | 11,3 | 4,9   |
| 6       | 3.     | 16,0 | 5,6   |  | 6       | 3.     | 6,6  | 4,7   |
| 8       | 3.     | 22,0 | 6,0   |  | 8       | 3.     | 2,2  | 4,4   |
|         |        |      | 6,4   |  |         |        |      | 3,7   |
| 1811, 0 | 3.     | 28,4 |       |  | 1819, 0 | 2.     | 58,5 |       |
| 2       | 3.     | 34,7 | 6,3   |  | 2       | 2.     | 55,1 | 3,4   |
| 4       | 3.     | 42,7 | 8,0   |  | 4       | 2.     | 52,6 | 2,5   |
| 6       | 3.     | 48,5 | 5,8   |  | 6       | 2.     | 50,8 | 1,8   |
| 8       | 3.     | 54,1 | 5,6   |  | 8       | 2.     | 49,7 | 1,1   |
|         |        |      | 5,6   |  |         |        |      | 0,3   |
| 1812, 0 | 3.     | 59,7 |       |  | 1820, 0 | 2.     | 49,4 |       |



TABLE XI. Equation of the centre of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |
|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|
|         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |
| 0       | 1.          | 15. | 24,4 | 38,6  |  | 4000    | 0.          | 51. | 1,5  | 31,8  |  | 8000    | 0.          | 35. | 51,4 | 10,9  |
| 100     | 1.          | 14. | 45,8 | 38,5  |  | 4100    | 0.          | 50. | 29,7 | 31,5  |  | 8100    | 0.          | 35. | 40,5 | 10,2  |
| 200     | 1.          | 14. | 7,3  | 38,6  |  | 4200    | 0.          | 49. | 58,2 | 31,2  |  | 8200    | 0.          | 35. | 30,3 | 9,8   |
| 300     | 1.          | 13. | 28,7 | 38,5  |  | 4300    | 0.          | 49. | 27,0 | 31,0  |  | 8300    | 0.          | 35. | 20,5 | 9,1   |
| 400     | 1.          | 12. | 50,2 | 38,5  |  | 4400    | 0.          | 48. | 56,0 | 30,3  |  | 8400    | 0.          | 35. | 11,4 | 8,4   |
| 500     | 1.          | 12. | 11,7 | 38,5  |  | 4500    | 0.          | 48. | 25,7 | 30,0  |  | 8500    | 0.          | 35. | 3,0  | 7,6   |
| 600     | 1.          | 11. | 33,2 | 38,6  |  | 4600    | 0.          | 47. | 55,7 | 29,6  |  | 8600    | 0.          | 34. | 55,4 | 7,2   |
| 700     | 1.          | 10. | 54,6 | 38,5  |  | 4700    | 0.          | 47. | 26,1 | 29,1  |  | 8700    | 0.          | 34. | 48,2 | 6,2   |
| 800     | 1.          | 10. | 16,1 | 38,4  |  | 4800    | 0.          | 46. | 57,0 | 28,8  |  | 8800    | 0.          | 34. | 42,0 | 5,7   |
| 900     | 1.          | 9.  | 37,7 | 38,5  |  | 4900    | 0.          | 46. | 28,2 | 28,2  |  | 8900    | 0.          | 34. | 36,3 | 5,0   |
| 1000    | 1.          | 8.  | 59,2 | 38,4  |  | 5000    | 0.          | 46. | 0,0  | 27,7  |  | 9000    | 0.          | 34. | 31,3 | 4,2   |
| 1100    | 1.          | 8.  | 20,8 | 38,2  |  | 5100    | 0.          | 45. | 32,3 | 27,5  |  | 9100    | 0.          | 34. | 27,1 | 3,6   |
| 1200    | 1.          | 7.  | 42,6 | 38,3  |  | 5200    | 0.          | 45. | 4,8  | 27,1  |  | 9200    | 0.          | 34. | 23,5 | 2,8   |
| 1300    | 1.          | 7.  | 4,3  | 38,0  |  | 5300    | 0.          | 44. | 37,7 | 26,4  |  | 9300    | 0.          | 34. | 20,7 | 2,2   |
| 1400    | 1.          | 6.  | 26,3 | 38,1  |  | 5400    | 0.          | 44. | 11,3 | 26,0  |  | 9400    | 0.          | 34. | 18,5 | 1,4   |
| 1500    | 1.          | 5.  | 48,2 | 37,8  |  | 5500    | 0.          | 43. | 45,3 | 25,5  |  | 9500    | 0.          | 34. | 17,1 | 0,6   |
| 1600    | 1.          | 5.  | 10,4 | 37,7  |  | 5600    | 0.          | 43. | 19,8 | 25,0  |  | 9600    | 0.          | 34. | 16,5 | 0,1   |
| 1700    | 1.          | 4.  | 32,7 | 37,5  |  | 5700    | 0.          | 42. | 54,8 | 24,6  |  | 9700    | 0.          | 34. | 16,6 | 0,7   |
| 1800    | 1.          | 3.  | 55,2 | 37,5  |  | 5800    | 0.          | 42. | 30,2 | 24,1  |  | 9800    | 0.          | 34. | 17,3 | 1,5   |
| 1900    | 1.          | 3.  | 17,7 | 37,2  |  | 5900    | 0.          | 42. | 6,1  | 23,5  |  | 9900    | 0.          | 34. | 18,8 | 2,2   |
| 2000    | 1.          | 2.  | 40,5 | 37,0  |  | 6000    | 0.          | 41. | 42,6 | 23,0  |  | 10000   | 0.          | 34. | 21,0 | 3,0   |
| 2100    | 1.          | 2.  | 3,5  | 36,9  |  | 6100    | 0.          | 41. | 19,6 | 22,5  |  | 10100   | 0.          | 34. | 24,0 | 3,6   |
| 2200    | 1.          | 1.  | 26,6 | 36,8  |  | 6200    | 0.          | 40. | 57,1 | 22,0  |  | 10200   | 0.          | 34. | 27,6 | 4,3   |
| 2300    | 1.          | 0.  | 49,8 | 36,5  |  | 6300    | 0.          | 40. | 35,1 | 21,4  |  | 10300   | 0.          | 34. | 31,9 | 5,3   |
| 2400    | 1.          | 0.  | 13,3 | 36,5  |  | 6400    | 0.          | 40. | 13,7 | 20,8  |  | 10400   | 0.          | 34. | 37,2 | 5,9   |
| 2500    | 0.          | 59. | 36,8 | 36,1  |  | 6500    | 0.          | 39. | 52,9 | 20,2  |  | 10500   | 0.          | 34. | 43,1 | 6,6   |
| 2600    | 0.          | 59. | 0,7  | 36,2  |  | 6600    | 0.          | 39. | 32,7 | 19,7  |  | 10600   | 0.          | 34. | 49,7 | 7,3   |
| 2700    | 0.          | 58. | 24,5 | 35,8  |  | 6700    | 0.          | 39. | 13,0 | 19,2  |  | 10700   | 0.          | 34. | 57,0 | 8,1   |
| 2800    | 0.          | 57. | 48,7 | 35,5  |  | 6800    | 0.          | 38. | 53,8 | 18,6  |  | 10800   | 0.          | 35. | 5,1  | 8,8   |
| 2900    | 0.          | 57. | 13,2 | 35,2  |  | 6900    | 0.          | 38. | 35,2 | 17,9  |  | 10900   | 0.          | 35. | 13,9 | 9,5   |
| 3000    | 0.          | 56. | 38,0 | 34,9  |  | 7000    | 0.          | 38. | 17,3 | 17,5  |  | 11000   | 0.          | 35. | 23,4 | 10,2  |
| 3100    | 0.          | 56. | 3,1  | 34,6  |  | 7100    | 0.          | 37. | 59,8 | 16,7  |  | 11100   | 0.          | 35. | 33,6 | 10,9  |
| 3200    | 0.          | 55. | 28,5 | 34,5  |  | 7200    | 0.          | 37. | 43,1 | 16,2  |  | 11200   | 0.          | 35. | 44,5 | 11,8  |
| 3300    | 0.          | 54. | 54,0 | 34,4  |  | 7300    | 0.          | 37. | 26,9 | 15,5  |  | 11300   | 0.          | 35. | 56,3 | 12,4  |
| 3400    | 0.          | 54. | 19,6 | 33,7  |  | 7400    | 0.          | 37. | 11,4 | 14,9  |  | 11400   | 0.          | 36. | 8,7  | 13,2  |
| 3500    | 0.          | 53. | 45,9 | 33,5  |  | 7500    | 0.          | 36. | 56,5 | 14,4  |  | 11500   | 0.          | 36. | 21,9 | 13,7  |
| 3600    | 0.          | 53. | 12,4 | 33,3  |  | 7600    | 0.          | 36. | 42,1 | 13,5  |  | 11600   | 0.          | 36. | 35,6 | 14,7  |
| 3700    | 0.          | 52. | 39,1 | 33,0  |  | 7700    | 0.          | 36. | 28,6 | 13,0  |  | 11700   | 0.          | 36. | 50,3 | 15,5  |
| 3800    | 0.          | 52. | 6,1  | 32,4  |  | 7800    | 0.          | 36. | 15,6 | 12,5  |  | 11800   | 0.          | 37. | 5,8  | 15,9  |
| 3900    | 0.          | 51. | 3,37 | 32,2  |  | 7900    | 0.          | 36. | 3,1  | 11,7  |  | 11900   | 0.          | 37. | 21,7 | 16,7  |
| 4000    | 0.          | 51. | 1,5  |       |  | 8000    | 0.          | 35. | 51,4 |       |  | 12000   | 0.          | 37. | 38,4 |       |



TABLE XI. Equation of the centre of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. |
|---------|-------------|-------|---------|-------------|-------|---------|-------------|-------|
|         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |
| 12000   | 0. 37. 38,4 | 17,5  | 16000   | 0. 57. 19,5 | 39,5  | 20000   | 1. 25. 36,3 | 40,8  |
| 12100   | 0. 37. 55,9 | 18,0  | 16100   | 0. 57. 59,0 | 40,6  | 20100   | 1. 26. 17,1 | 40,7  |
| 12200   | 0. 38. 13,9 | 18,9  | 16200   | 0. 58. 39,6 | 40,4  | 20200   | 1. 26. 57,8 | 40,5  |
| 12300   | 0. 38. 32,8 | 19,5  | 16300   | 0. 59. 20,0 | 40,6  | 20300   | 1. 27. 38,3 | 40,1  |
| 12400   | 0. 38. 52,3 | 20,3  | 16400   | 1. 0. 0,6   | 40,9  | 20400   | 1. 28. 18,4 | 39,8  |
| 12500   | 0. 39. 12,6 | 20,9  | 16500   | 1. 0. 41,5  | 41,2  | 20500   | 1. 28. 58,2 | 39,4  |
| 12600   | 0. 39. 33,5 | 21,7  | 16600   | 1. 1. 22,7  | 41,5  | 20600   | 1. 29. 37,6 | 39,0  |
| 12700   | 0. 39. 55,2 | 22,2  | 16700   | 1. 2. 4,2   | 41,7  | 20700   | 1. 30. 16,6 | 38,7  |
| 12800   | 0. 40. 17,4 | 22,9  | 16800   | 1. 2. 45,9  | 42,1  | 20800   | 1. 30. 55,3 | 38,3  |
| 12900   | 0. 40. 40,3 | 23,7  | 16900   | 1. 3. 28,0  | 42,0  | 20900   | 1. 31. 33,6 | 38,0  |
| 13000   | 0. 41. 4,0  | 24,2  | 17000   | 1. 4. 10,0  | 42,3  | 21000   | 1. 32. 11,6 | 37,6  |
| 13100   | 0. 41. 28,2 | 25,0  | 17100   | 1. 4. 52,3  | 42,6  | 21100   | 1. 32. 49,2 | 37,2  |
| 13200   | 0. 41. 53,2 | 25,5  | 17200   | 1. 5. 34,9  | 42,7  | 21200   | 1. 33. 26,4 | 36,7  |
| 13300   | 0. 42. 18,7 | 26,3  | 17300   | 1. 6. 17,6  | 42,8  | 21300   | 1. 34. 3,1  | 36,2  |
| 13400   | 0. 42. 45,0 | 26,9  | 17400   | 1. 7. 0,4   | 43,0  | 21400   | 1. 34. 39,3 | 35,8  |
| 13500   | 0. 43. 11,9 | 27,3  | 17500   | 1. 7. 43,4  | 43,1  | 21500   | 1. 35. 15,1 | 35,3  |
| 13600   | 0. 43. 39,2 | 27,9  | 17600   | 1. 8. 26,5  | 43,3  | 21600   | 1. 35. 50,4 | 34,8  |
| 13700   | 0. 44. 7,1  | 28,6  | 17700   | 1. 9. 9,8   | 43,3  | 21700   | 1. 36. 25,2 | 34,4  |
| 13800   | 0. 44. 35,7 | 29,4  | 17800   | 1. 9. 53,1  | 43,4  | 21800   | 1. 36. 59,6 | 34,0  |
| 13900   | 0. 45. 5,1  | 30,0  | 17900   | 1. 10. 36,5 | 43,4  | 21900   | 1. 37. 33,6 | 33,3  |
| 14000   | 0. 45. 35,1 | 30,4  | 18000   | 1. 11. 19,9 | 43,4  | 22000   | 1. 38. 6,9  | 32,8  |
| 14100   | 0. 46. 5,5  | 30,9  | 18100   | 1. 12. 3,3  | 43,6  | 22100   | 1. 38. 39,7 | 32,4  |
| 14200   | 0. 46. 36,4 | 31,6  | 18200   | 1. 12. 46,9 | 43,6  | 22200   | 1. 39. 12,1 | 31,6  |
| 14300   | 0. 47. 8,0  | 32,0  | 18300   | 1. 13. 30,5 | 43,6  | 22300   | 1. 39. 43,7 | 31,3  |
| 14400   | 0. 47. 40,0 | 32,7  | 18400   | 1. 14. 14,1 | 43,4  | 22400   | 1. 40. 15,0 | 30,5  |
| 14500   | 0. 48. 12,7 | 33,2  | 18500   | 1. 14. 57,5 | 43,4  | 22500   | 1. 40. 45,5 | 30,1  |
| 14600   | 0. 48. 45,9 | 33,8  | 18600   | 1. 15. 40,9 | 43,3  | 22600   | 1. 41. 15,6 | 29,5  |
| 14700   | 0. 49. 19,7 | 34,1  | 18700   | 1. 16. 24,2 | 43,3  | 22700   | 1. 41. 45,1 | 28,9  |
| 14800   | 0. 49. 53,8 | 34,8  | 18800   | 1. 17. 7,5  | 43,2  | 22800   | 1. 42. 14,0 | 28,4  |
| 14900   | 0. 50. 28,6 | 35,2  | 18900   | 1. 17. 50,7 | 43,2  | 22900   | 1. 42. 42,4 | 27,6  |
| 15000   | 0. 51. 3,8  | 35,6  | 19000   | 1. 18. 33,9 | 43,0  | 23000   | 1. 43. 10,0 | 27,1  |
| 15100   | 0. 51. 39,4 | 36,1  | 19100   | 1. 19. 16,9 | 42,9  | 23100   | 1. 43. 37,1 | 26,5  |
| 15200   | 0. 52. 15,5 | 36,7  | 19200   | 1. 19. 59,8 | 42,8  | 23200   | 1. 44. 3,6  | 25,8  |
| 15300   | 0. 52. 52,2 | 37,0  | 19300   | 1. 20. 42,6 | 42,7  | 23300   | 1. 44. 29,4 | 25,5  |
| 15400   | 0. 53. 29,2 | 37,6  | 19400   | 1. 21. 25,3 | 42,3  | 23400   | 1. 44. 54,9 | 24,5  |
| 15500   | 0. 54. 6,8  | 37,3  | 19500   | 1. 22. 7,6  | 42,2  | 23500   | 1. 45. 19,4 | 23,9  |
| 15600   | 0. 54. 44,1 | 38,6  | 19600   | 1. 22. 49,8 | 41,8  | 23600   | 1. 45. 43,3 | 23,1  |
| 15700   | 0. 55. 22,7 | 38,6  | 19700   | 1. 23. 31,6 | 41,8  | 23700   | 1. 46. 6,4  | 22,7  |
| 15800   | 0. 56. 1,3  | 39,0  | 19800   | 1. 24. 13,4 | 41,6  | 23800   | 1. 46. 29,1 | 22,0  |
| 15900   | 0. 56. 40,3 | 39,2  | 19900   | 1. 24. 55,0 | 41,3  | 23900   | 1. 46. 51,1 | 21,3  |
| 16000   | 0. 57. 19,5 |       | 20000   | 1. 25. 36,3 |       | 24000   | 1. 47. 12,4 |       |



TABLE XI. Equation of the centre of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |
|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|
|         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |
| 24000   | I.          | 47. | 12,4 | 20,5  |  | 28000   | I.          | 51. | 46,0 | 7,5   |  | 32000   | I.          | 38. | 54,7 | 26,8  |
| 24100   | I.          | 47. | 32,9 | 20,0  |  | 28100   | I.          | 51. | 38,5 | 8,3   |  | 32100   | I.          | 38. | 24,9 | 30,2  |
| 24200   | I.          | 47. | 52,9 | 19,4  |  | 28200   | I.          | 51. | 30,2 | 9,1   |  | 32200   | I.          | 37. | 54,7 | 30,5  |
| 24300   | I.          | 48. | 12,3 | 18,5  |  | 28300   | I.          | 51. | 21,1 | 9,6   |  | 32300   | I.          | 37. | 24,2 | 30,8  |
| 24400   | I.          | 48. | 30,8 | 17,9  |  | 28400   | I.          | 51. | 11,5 | 10,2  |  | 32400   | I.          | 36. | 53,4 | 31,3  |
| 24500   | I.          | 48. | 48,7 | 17,2  |  | 28500   | I.          | 51. | 1,3  | 10,9  |  | 32500   | I.          | 36. | 22,1 | 31,5  |
| 24600   | I.          | 49. | 5,9  | 16,4  |  | 28600   | I.          | 50. | 50,4 | 11,7  |  | 32600   | I.          | 35. | 50,6 | 32,0  |
| 24700   | I.          | 49. | 22,3 | 15,8  |  | 28700   | I.          | 50. | 38,7 | 12,2  |  | 32700   | I.          | 35. | 18,6 | 32,5  |
| 24800   | I.          | 49. | 38,1 | 15,1  |  | 28800   | I.          | 50. | 26,5 | 12,7  |  | 32800   | I.          | 34. | 46,1 | 32,6  |
| 24900   | I.          | 49. | 53,2 | 14,4  |  | 28900   | I.          | 50. | 13,8 | 13,5  |  | 32900   | I.          | 34. | 13,5 | 32,9  |
| 25000   | I.          | 50. | 7,6  | 13,6  |  | 29000   | I.          | 50. | 0,3  | 13,9  |  | 33000   | I.          | 33. | 40,6 | 33,4  |
| 25100   | I.          | 50. | 21,2 | 12,9  |  | 29100   | I.          | 49. | 46,4 | 14,8  |  | 33100   | I.          | 33. | 7,2  | 33,7  |
| 25200   | I.          | 50. | 34,1 | 12,3  |  | 29200   | I.          | 49. | 31,6 | 15,4  |  | 33200   | I.          | 32. | 33,5 | 33,9  |
| 25300   | I.          | 50. | 46,4 | 11,5  |  | 29300   | I.          | 49. | 16,2 | 15,9  |  | 33300   | I.          | 31. | 59,6 | 34,1  |
| 25400   | I.          | 50. | 57,9 | 10,8  |  | 29400   | I.          | 49. | 0,3  | 16,6  |  | 33400   | I.          | 31. | 25,5 | 34,5  |
| 25500   | I.          | 51. | 8,7  | 9,9   |  | 29500   | I.          | 48. | 43,7 | 17,2  |  | 33500   | I.          | 30. | 51,0 | 34,7  |
| 25600   | I.          | 51. | 18,6 | 9,5   |  | 29600   | I.          | 48. | 26,5 | 17,6  |  | 33600   | I.          | 30. | 16,3 | 34,9  |
| 25700   | I.          | 51. | 28,1 | 8,7   |  | 29700   | I.          | 48. | 8,9  | 18,2  |  | 33700   | I.          | 29. | 41,4 | 35,2  |
| 25800   | I.          | 51. | 36,8 | 7,8   |  | 29800   | I.          | 47. | 50,7 | 18,9  |  | 33800   | I.          | 29. | 6,2  | 35,7  |
| 25900   | I.          | 51. | 44,6 | 7,4   |  | 29900   | I.          | 47. | 31,8 | 19,6  |  | 33900   | I.          | 28. | 30,5 | 35,8  |
| 26000   | I.          | 51. | 52,0 | 6,4   |  | 30000   | I.          | 47. | 12,2 | 19,9  |  | 34000   | I.          | 27. | 54,7 | 36,0  |
| 26100   | I.          | 51. | 58,4 | 5,7   |  | 30100   | I.          | 46. | 52,3 | 20,5  |  | 34100   | I.          | 27. | 18,7 | 36,2  |
| 26200   | I.          | 52. | 4,1  | 5,1   |  | 30200   | I.          | 46. | 31,8 | 21,2  |  | 34200   | I.          | 26. | 42,5 | 36,4  |
| 26300   | I.          | 52. | 9,2  | 4,3   |  | 30300   | I.          | 46. | 10,6 | 21,8  |  | 34300   | I.          | 26. | 6,1  | 36,6  |
| 26400   | I.          | 52. | 13,5 | 3,6   |  | 30400   | I.          | 45. | 48,8 | 22,4  |  | 34400   | I.          | 25. | 29,5 | 36,9  |
| 26500   | I.          | 52. | 17,1 | 2,8   |  | 30500   | I.          | 45. | 26,4 | 22,7  |  | 34500   | I.          | 24. | 52,6 | 37,0  |
| 26600   | I.          | 52. | 19,9 | 2,1   |  | 30600   | I.          | 45. | 3,7  | 23,0  |  | 34600   | I.          | 24. | 15,6 | 37,1  |
| 26700   | I.          | 52. | 22,0 | 1,6   |  | 30700   | I.          | 44. | 40,7 | 23,7  |  | 34700   | I.          | 23. | 38,5 | 37,3  |
| 26800   | I.          | 52. | 23,6 | 0,7   |  | 30800   | I.          | 44. | 17,0 | 24,3  |  | 34800   | I.          | 23. | 1,2  | 37,4  |
| 26900   | I.          | 52. | 24,3 | 0,0   |  | 30900   | I.          | 43. | 52,7 | 24,9  |  | 34900   | I.          | 22. | 23,8 | 37,6  |
| 27000   | I.          | 52. | 24,3 | 0,6   |  | 31000   | I.          | 43. | 27,8 | 25,2  |  | 35000   | I.          | 21. | 46,2 | 37,8  |
| 27100   | I.          | 52. | 23,7 | 1,3   |  | 31100   | I.          | 43. | 2,6  | 25,8  |  | 35100   | I.          | 21. | 8,4  | 37,9  |
| 27200   | I.          | 52. | 22,4 | 2,2   |  | 31200   | I.          | 42. | 36,8 | 26,1  |  | 35200   | I.          | 20. | 30,5 | 38,1  |
| 27300   | I.          | 52. | 20,2 | 3,0   |  | 31300   | I.          | 42. | 10,7 | 26,6  |  | 35300   | I.          | 19. | 52,4 | 38,0  |
| 27400   | I.          | 52. | 17,2 | 3,4   |  | 31400   | I.          | 41. | 44,1 | 27,2  |  | 35400   | I.          | 19. | 14,4 | 38,1  |
| 27500   | I.          | 52. | 13,8 | 4,0   |  | 31500   | I.          | 41. | 16,9 | 27,5  |  | 35500   | I.          | 18. | 36,3 | 38,3  |
| 27600   | I.          | 52. | 9,8  | 4,9   |  | 31600   | I.          | 40. | 49,4 | 28,0  |  | 35600   | I.          | 17. | 58,0 | 38,3  |
| 27700   | I.          | 52. | 4,9  | 5,6   |  | 31700   | I.          | 40. | 21,4 | 28,5  |  | 35700   | I.          | 17. | 19,7 | 38,4  |
| 27800   | I.          | 51. | 59,3 | 6,4   |  | 31800   | I.          | 39. | 52,9 | 29,0  |  | 35800   | I.          | 16. | 41,3 | 38,5  |
| 27900   | I.          | 51. | 52,9 | 6,9   |  | 31900   | I.          | 39. | 23,9 | 29,2  |  | 35900   | I.          | 16. | 2,8  | 38,4  |
| 28000   | I.          | 51. | 46,0 |       |  | 32000   | I.          | 38. | 54,7 |       |  | 36000   | I.          | 15. | 24,4 |       |



[illegible]



TABLE XIII. EQUATION F. and G.

| Arg. F. and G. |     | Eq. F. | Eq. G. | Arg. F. and G. |     | Eq. F. | Eq. G. | Arg. F. and G. |     | Eq. F. | Eq. G. |
|----------------|-----|--------|--------|----------------|-----|--------|--------|----------------|-----|--------|--------|
|                |     | SEC.   | SEC.   |                |     | SEC.   | SEC.   |                |     | SEC.   | SEC.   |
| 250            | 250 | 0,0    | 0,0    | 420            | 80  | 5,8    | 1,9    | 590            | 910 | 17,0   | 5,7    |
| 260            | 240 | 0,1    | 0,0    | 430            | 70  | 6,4    | 2,1    | 600            | 900 | 17,6   | 5,8    |
| 270            | 230 | 0,1    | 0,1    | 440            | 60  | 7,0    | 2,3    | 610            | 890 | 18,2   | 6,0    |
| 280            | 220 | 0,3    | 0,1    | 450            | 50  | 7,7    | 2,6    | 620            | 880 | 18,7   | 6,2    |
| 290            | 210 | 0,4    | 0,1    | 460            | 40  | 8,4    | 2,8    | 630            | 870 | 19,2   | 6,3    |
| 300            | 200 | 0,6    | 0,2    | 470            | 30  | 9,0    | 3,0    | 640            | 860 | 19,6   | 6,5    |
| 310            | 190 | 0,8    | 0,3    | 480            | 20  | 9,7    | 3,2    | 650            | 850 | 20,0   | 6,7    |
| 320            | 180 | 1,1    | 0,4    | 490            | 10  | 10,4   | 3,5    | 660            | 840 | 20,4   | 6,8    |
| 330            | 170 | 1,4    | 0,5    | 500            | 0   | 11,1   | 3,7    | 670            | 830 | 20,8   | 6,9    |
| 340            | 160 | 1,8    | 0,6    | 510            | 990 | 11,8   | 3,9    | 680            | 820 | 21,1   | 7,0    |
| 350            | 150 | 2,2    | 0,7    | 520            | 980 | 12,5   | 4,2    | 690            | 810 | 21,4   | 7,1    |
| 360            | 140 | 2,6    | 0,9    | 530            | 970 | 13,2   | 4,4    | 700            | 800 | 21,6   | 7,2    |
| 370            | 130 | 3,0    | 1,1    | 540            | 960 | 13,8   | 4,6    | 710            | 790 | 21,8   | 7,3    |
| 380            | 120 | 3,5    | 1,2    | 550            | 950 | 14,5   | 4,8    | 720            | 780 | 21,9   | 7,3    |
| 390            | 110 | 4,0    | 1,4    | 560            | 940 | 15,2   | 5,1    | 730            | 770 | 22,0   | 7,3    |
| 400            | 100 | 4,6    | 1,6    | 570            | 930 | 15,8   | 5,3    | 740            | 760 | 22,1   | 7,4    |
| 410            | 90  | 5,2    | 1,7    | 580            | 920 | 16,4   | 5,5    | 750            | 750 | 22,2   | 7,4    |
| 420            | 80  | 5,8    | 1,9    | 590            | 910 | 17,0   | 5,7    |                |     |        |        |

TABLE XIV. REDUCTION.

| Arg. H. |      | Red. | Diff. | Arg. H. |      | Red. | Diff. | Arg. H. |       | Red. | Diff. |
|---------|------|------|-------|---------|------|------|-------|---------|-------|------|-------|
|         |      | SEC. | SEC.  |         |      | SEC. | SEC.  |         |       | SEC. | SEC.  |
| 0       | 5000 | 23,4 |       | 1700    | 6700 | 3,6  |       | 3400    | 8400  | 44,6 |       |
| 100     | 5100 | 20,5 | 2,9   | 1800    | 6800 | 5,3  | 1,7   | 3500    | 8500  | 45,7 | 1,1   |
| 200     | 5200 | 17,6 | 2,9   | 1900    | 6900 | 7,3  | 2,0   | 3600    | 8600  | 46,5 | 0,8   |
| 300     | 5300 | 14,8 | 2,8   | 2000    | 7000 | 9,6  | 2,3   | 3700    | 8700  | 46,8 | 0,3   |
|         |      |      | 2,7   |         |      |      | 2,5   |         |       |      | 0,0   |
| 400     | 5400 | 12,1 |       | 2100    | 7100 | 12,1 |       | 3800    | 8800  | 46,8 |       |
| 500     | 5500 | 9,6  | 2,5   | 2200    | 7200 | 14,8 | 2,7   | 3900    | 8900  | 46,5 | 0,3   |
| 600     | 5600 | 7,3  | 2,3   | 2300    | 7300 | 17,6 | 2,8   | 4000    | 9000  | 45,7 | 0,8   |
| 700     | 5700 | 5,3  | 2,0   | 2400    | 7400 | 20,5 | 2,9   | 4100    | 9100  | 44,6 | 1,1   |
|         |      |      | 1,7   |         |      |      | 2,9   |         |       |      | 1,4   |
| 800     | 5800 | 3,6  |       | 2500    | 7500 | 23,4 |       | 4200    | 9200  | 43,2 |       |
| 900     | 5900 | 2,2  | 1,4   | 2600    | 7600 | 26,3 | 2,9   | 4300    | 9300  | 41,5 | 1,7   |
| 1000    | 6000 | 1,1  | 1,1   | 2700    | 7700 | 29,2 | 2,9   | 4400    | 9400  | 39,5 | 2,0   |
| 1100    | 6100 | 0,3  | 0,8   | 2800    | 7800 | 32,0 | 2,8   | 4500    | 9500  | 37,2 | 2,3   |
|         |      |      | 0,3   |         |      |      | 2,7   |         |       |      | 2,5   |
| 1200    | 6200 | 0,0  |       | 2900    | 7900 | 34,7 |       | 4600    | 9600  | 34,7 |       |
| 1300    | 6300 | 0,0  | 0,0   | 3000    | 8000 | 37,2 | 2,5   | 4700    | 9700  | 32,0 | 2,7   |
| 1400    | 6400 | 0,3  | 0,3   | 3100    | 8100 | 39,5 | 2,3   | 4800    | 9800  | 29,2 | 2,8   |
| 1500    | 6500 | 1,1  | 0,8   | 3200    | 8200 | 41,5 | 2,0   | 4900    | 9900  | 26,3 | 2,9   |
|         |      |      | 1,1   |         |      |      | 1,7   |         |       |      | 2,9   |
| 1600    | 6600 | 2,2  |       | 3300    | 8300 | 43,2 |       | 5000    | 10000 | 23,4 |       |
| 1700    | 6700 | 3,6  | 1,4   | 3400    | 8400 | 44,6 | 1,4   |         |       |      |       |



TABLE XV. Semi-durations.

| ARGUMENT H. |      |      |      |                |       |     |
|-------------|------|------|------|----------------|-------|-----|
| ARGUMENT H. |      |      |      | Semi-duration. | Diff. | N   |
|             |      |      |      | H. M. S.       | SEC.  |     |
| 0           | 5000 | 5000 | 0    | 1. 7. 34,2     | 1,0   | 100 |
| 100         | 4900 | 5100 | 9900 | 1. 7. 33,2     | 2,8   | 100 |
| 200         | 4800 | 5200 | 9800 | 1. 7. 30,4     | 4,9   | 100 |
| 300         | 4700 | 5300 | 9700 | 1. 7. 25,5     | 6,6   | 100 |
| 400         | 4600 | 5400 | 9600 | 1. 7. 18,9     | 8,3   | 99  |
| 500         | 4500 | 5500 | 9500 | 1. 7. 10,6     | 10,0  | 99  |
| 600         | 4400 | 5600 | 9400 | 1. 7. 0,6      | 11,4  | 98  |
| 700         | 4300 | 5700 | 9300 | 1. 6. 49,2     | 12,6  | 97  |
| 800         | 4200 | 5800 | 9200 | 1. 6. 36,6     | 13,9  | 96  |
| 900         | 4100 | 5900 | 9100 | 1. 6. 22,7     | 14,6  | 95  |
| 1000        | 4000 | 6000 | 9000 | 1. 6. 8,1      | 15,4  | 94  |
| 1100        | 3900 | 6100 | 8900 | 1. 5. 52,7     | 15,7  | 93  |
| 1200        | 3800 | 6200 | 8800 | 1. 5. 37,0     | 16,0  | 92  |
| 1300        | 3700 | 6300 | 8700 | 1. 5. 21,0     | 16,0  | 91  |
| 1400        | 3600 | 6400 | 8600 | 1. 5. 5,0      | 15,5  | 90  |
| 1500        | 3500 | 6500 | 8500 | 1. 4. 49,5     | 15,1  | 88  |
| 1600        | 3400 | 6600 | 8400 | 1. 4. 34,4     | 14,2  | 87  |
| 1700        | 3300 | 6700 | 8300 | 1. 4. 20,2     | 13,2  | 86  |
| 1800        | 3200 | 6800 | 8200 | 1. 4. 7,0      | 11,9  | 85  |
| 1900        | 3100 | 6900 | 8100 | 1. 3. 55,1     | 10,4  | 84  |
| 2000        | 3000 | 7000 | 8000 | 1. 3. 44,7     | 8,8   | 83  |
| 2100        | 2900 | 7100 | 7900 | 1. 3. 35,9     | 7,0   | 82  |
| 2200        | 2800 | 7200 | 7800 | 1. 3. 28,9     | 5,1   | 81  |
| 2300        | 2700 | 7300 | 7700 | 1. 3. 23,8     | 3,0   | 81  |
| 2400        | 2600 | 7400 | 7600 | 1. 3. 20,8     | 1,1   | 81  |
| 2500        | 2500 | 7500 | 7500 | 1. 3. 19,7     |       | 81  |



TABLE XVI. The correction of the Semi-durations.

| ARGUMENTS C and N. |      |      |      |           |          |          |          |          |
|--------------------|------|------|------|-----------|----------|----------|----------|----------|
| ARGUMENT C.        |      |      |      | N.<br>100 | N.<br>95 | N.<br>90 | N.<br>85 | N.<br>80 |
|                    |      |      |      | SEC.      | SEC.     | SEC.     | SEC.     | SEC.     |
| 0                  | 5000 | 5000 | 0    | 0,0       | 0,9      | 1,9      | 2,6      | 3,7      |
| 100                | 4900 | 5100 | 9900 | 0,2       | 1,2      | 2,0      | 2,9      | 3,8      |
| 200                | 4800 | 5200 | 9800 | 0,6       | 1,5      | 2,4      | 3,1      | 4,2      |
| 300                | 4700 | 5300 | 9700 | 1,4       | 2,2      | 3,0      | 3,8      | 4,8      |
| 400                | 4600 | 5400 | 9600 | 2,3       | 3,1      | 3,9      | 4,6      | 5,5      |
| 500                | 4500 | 5500 | 9500 | 3,6       | 4,3      | 5,0      | 5,6      | 6,5      |
| 600                | 4400 | 5600 | 9400 | 5,0       | 5,6      | 6,4      | 6,9      | 7,7      |
| 700                | 4300 | 5700 | 9300 | 6,7       | 7,3      | 7,7      | 8,2      | 9,0      |
| 800                | 4200 | 5800 | 9200 | 8,6       | 9,1      | 9,5      | 9,9      | 10,6     |
| 900                | 4100 | 5900 | 9100 | 10,6      | 11,0     | 11,4     | 11,7     | 12,1     |
| 1000               | 4000 | 6000 | 9000 | 12,8      | 13,1     | 13,3     | 13,6     | 13,9     |
| 1100               | 3900 | 6100 | 8900 | 15,0      | 15,2     | 15,3     | 15,5     | 15,7     |
| 1200               | 3800 | 6200 | 8800 | 17,3      | 17,4     | 17,4     | 17,5     | 17,5     |
| 1300               | 3700 | 6300 | 8700 | 19,6      | 19,5     | 19,5     | 19,4     | 19,4     |
| 1400               | 3600 | 6400 | 8600 | 21,8      | 21,6     | 21,5     | 21,3     | 21,1     |
| 1500               | 3500 | 6500 | 8500 | 24,0      | 23,7     | 23,5     | 23,2     | 22,9     |
| 1600               | 3400 | 6600 | 8400 | 26,2      | 25,8     | 25,4     | 25,1     | 24,7     |
| 1700               | 3300 | 6700 | 8300 | 28,2      | 27,7     | 27,2     | 26,8     | 26,2     |
| 1800               | 3200 | 6800 | 8200 | 30,1      | 29,5     | 28,8     | 28,6     | 27,8     |
| 1900               | 3100 | 6900 | 8100 | 31,8      | 31,2     | 30,3     | 29,7     | 29,2     |
| 2000               | 3000 | 7000 | 8000 | 33,2      | 32,5     | 31,8     | 31,2     | 30,2     |
| 2100               | 2900 | 7100 | 7900 | 34,5      | 33,7     | 32,9     | 32,2     | 31,3     |
| 2200               | 2800 | 7200 | 7800 | 35,4      | 34,6     | 33,8     | 33,1     | 32,0     |
| 2300               | 2700 | 7300 | 7700 | 36,2      | 35,3     | 34,4     | 33,7     | 32,6     |
| 2400               | 2600 | 7400 | 7600 | 36,6      | 35,6     | 34,8     | 33,9     | 32,9     |
| 2500               | 2500 | 7500 | 7500 | 36,8      | 35,9     | 34,9     | 34,2     | 33,1     |







TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |
| B. 1660 | 0.             | 2.  | 53. | 37,9 | 32247 | 5105 | 3373 | 8472 | 724 |
| 1661    | 1.             | 4.  | 36. | 52,1 | 35289 | 5127 | 2550 | 7654 | 801 |
| 1662    | 2.             | 6.  | 20. | 6,4  | 02331 | 5149 | 1728 | 6837 | 878 |
| 1663    | 3.             | 8.  | 3.  | 20,6 | 05372 | 5172 | 0904 | 6019 | 955 |
| B. 1664 | 3.             | 9.  | 46. | 34,8 | 08414 | 5194 | 0081 | 5201 | 032 |
| 1665    | 0.             | 22. | 11. | 55,3 | 11426 | 5119 | 9168 | 9344 | 108 |
| 1666    | 1.             | 23. | 55. | 9,5  | 14468 | 5141 | 8344 | 8528 | 185 |
| 1667    | 3.             | 1.  | 38. | 23,7 | 17510 | 5163 | 7523 | 7709 | 262 |
| B. 1668 | 3.             | 3.  | 21. | 37,9 | 20551 | 5186 | 6700 | 6891 | 339 |
| 1669    | 0.             | 15. | 46. | 58,4 | 23563 | 5112 | 5790 | 1032 | 415 |
| 1670    | 1.             | 17. | 30. | 12,6 | 26606 | 5133 | 4969 | 0214 | 492 |
| 1671    | 2.             | 19. | 13. | 26,8 | 29647 | 5155 | 4146 | 9397 | 569 |
| B. 1672 | 2.             | 20. | 56. | 41,1 | 32689 | 5177 | 3324 | 8579 | 646 |
| 1673    | 0.             | 9.  | 22. | 1,5  | 35700 | 5102 | 2412 | 2721 | 722 |
| 1674    | 1.             | 11. | 5.  | 15,8 | 02742 | 5124 | 1588 | 1903 | 799 |
| 1675    | 2.             | 12. | 48. | 30,0 | 05784 | 5147 | 0765 | 1086 | 876 |
| B. 1676 | 2.             | 14. | 31. | 44,2 | 08825 | 5169 | 9941 | 0269 | 953 |
| 1677    | 0.             | 2.  | 57. | 4,7  | 11837 | 5094 | 9029 | 4411 | 029 |
| 1678    | 1.             | 4.  | 40. | 18,9 | 14880 | 5116 | 8207 | 3593 | 106 |
| 1679    | 2.             | 6.  | 23. | 33,1 | 17922 | 5138 | 7384 | 2775 | 183 |
| B. 1680 | 2.             | 8.  | 6.  | 47,3 | 20964 | 5160 | 6563 | 1958 | 260 |
| 1681    | 3.             | 9.  | 50. | 1,5  | 24005 | 5183 | 5740 | 1140 | 337 |
| 1682    | 0.             | 22. | 15. | 22,0 | 27017 | 5108 | 4828 | 5282 | 413 |
| 1683    | 1.             | 23. | 58. | 36,2 | 30059 | 5130 | 4006 | 4464 | 490 |
| B. 1684 | 2.             | 1.  | 41. | 50,5 | 33101 | 5152 | 3183 | 3646 | 567 |
| 1685    | 3.             | 3.  | 25. | 4,7  | 00142 | 5174 | 2361 | 2829 | 644 |
| 1686    | 0.             | 15. | 50. | 25,2 | 03154 | 5099 | 1450 | 6970 | 720 |
| 1687    | 1.             | 17. | 33. | 39,4 | 06196 | 5121 | 0628 | 6152 | 797 |
| B. 1688 | 1.             | 19. | 16. | 53,6 | 09238 | 5144 | 9807 | 5335 | 873 |
| 1689    | 2.             | 21. | 0.  | 7,8  | 12280 | 5166 | 8985 | 4516 | 950 |
| 1690    | 0.             | 9.  | 25. | 28,3 | 15291 | 5091 | 8072 | 8657 | 026 |
| 1691    | 1.             | 11. | 8.  | 42,5 | 18333 | 5113 | 7249 | 7841 | 103 |
| B. 1692 | 1.             | 12. | 51. | 56,7 | 21375 | 5135 | 6425 | 7023 | 180 |
| 1693    | 2.             | 14. | 35. | 10,9 | 24417 | 5158 | 5601 | 6206 | 257 |
| 1694    | 0.             | 3.  | 0.  | 31,4 | 27429 | 5082 | 4688 | 0349 | 334 |
| 1695    | 1.             | 4.  | 43. | 45,6 | 30470 | 5105 | 3865 | 9531 | 411 |
| B. 1696 | 1.             | 6.  | 26. | 59,9 | 33512 | 5127 | 3043 | 8714 | 488 |
| 1697    | 2.             | 8.  | 10. | 14,1 | 00553 | 5149 | 2221 | 7895 | 565 |
| 1698    | 3.             | 9.  | 53. | 28,3 | 03595 | 5171 | 1399 | 7077 | 641 |
| 1699    | 0.             | 22. | 18. | 48,8 | 06607 | 5096 | 0490 | 1218 | 717 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS. |      | E   | F   | G   | H    | I    | K    | L    |
|--------|------|-----|-----|-----|------|------|------|------|
| B.     | 1660 | 584 | 470 | 611 | 5372 | 4479 | 2692 | 1232 |
|        | 1661 | 666 | 230 | 365 | 6217 | 5343 | 3611 | 2411 |
|        | 1662 | 749 | 989 | 119 | 7062 | 6207 | 4530 | 3590 |
|        | 1663 | 831 | 749 | 872 | 7908 | 7071 | 5450 | 4771 |
| B.     | 1664 | 914 | 508 | 626 | 8753 | 7936 | 6369 | 5951 |
|        | 1665 | 996 | 260 | 373 | 9591 | 8792 | 7280 | 7120 |
|        | 1666 | 078 | 020 | 127 | 0435 | 9655 | 8198 | 8300 |
|        | 1667 | 161 | 780 | 881 | 1281 | 0520 | 9118 | 9479 |
| B.     | 1668 | 243 | 539 | 635 | 2126 | 1384 | 0037 | 0658 |
|        | 1669 | 325 | 291 | 382 | 2961 | 2237 | 0945 | 1824 |
|        | 1670 | 407 | 051 | 135 | 3805 | 3100 | 1863 | 3003 |
|        | 1671 | 490 | 810 | 889 | 4649 | 3963 | 2782 | 4182 |
| B.     | 1672 | 572 | 570 | 643 | 5494 | 4827 | 3701 | 5361 |
|        | 1673 | 654 | 322 | 390 | 6331 | 5682 | 4611 | 6529 |
|        | 1674 | 737 | 082 | 144 | 7177 | 6547 | 5531 | 7710 |
|        | 1675 | 819 | 841 | 898 | 8023 | 7412 | 6450 | 8890 |
| B.     | 1676 | 902 | 601 | 652 | 8869 | 8277 | 7370 | 0071 |
|        | 1677 | 984 | 353 | 398 | 9705 | 9132 | 8280 | 1238 |
|        | 1678 | 066 | 113 | 152 | 0550 | 9996 | 9199 | 2418 |
|        | 1679 | 149 | 872 | 906 | 1395 | 0859 | 0118 | 3597 |
| B.     | 1680 | 231 | 632 | 660 | 2239 | 1722 | 1036 | 4776 |
|        | 1681 | 314 | 391 | 414 | 3084 | 2586 | 1955 | 5955 |
|        | 1682 | 396 | 144 | 161 | 3921 | 3441 | 2865 | 7123 |
|        | 1683 | 478 | 903 | 915 | 4766 | 4305 | 3784 | 8302 |
| B.     | 1684 | 561 | 663 | 669 | 5611 | 5169 | 4702 | 9482 |
|        | 1685 | 643 | 422 | 423 | 6456 | 6032 | 5621 | 0661 |
|        | 1686 | 725 | 174 | 169 | 7291 | 6887 | 6530 | 1828 |
|        | 1687 | 807 | 934 | 923 | 8135 | 7749 | 7448 | 3007 |
| B.     | 1688 | 890 | 694 | 677 | 8979 | 8612 | 8366 | 4185 |
|        | 1689 | 972 | 453 | 431 | 9823 | 9475 | 9284 | 5363 |
|        | 1690 | 054 | 205 | 178 | 0661 | 0331 | 0195 | 6532 |
|        | 1691 | 136 | 965 | 932 | 1507 | 1196 | 1115 | 7713 |
| B.     | 1692 | 219 | 724 | 686 | 2352 | 2061 | 2035 | 8893 |
|        | 1693 | 302 | 484 | 439 | 3198 | 2925 | 2955 | 0073 |
|        | 1694 | 384 | 236 | 186 | 4036 | 3782 | 3866 | 1242 |
|        | 1695 | 466 | 996 | 940 | 4882 | 4646 | 4785 | 2423 |
| B.     | 1696 | 549 | 755 | 694 | 5727 | 5510 | 5704 | 3602 |
|        | 1697 | 631 | 515 | 448 | 6571 | 6373 | 6622 | 4781 |
|        | 1698 | 714 | 275 | 202 | 7415 | 7236 | 7540 | 5959 |
|        | 1699 | 795 | 027 | 949 | 8249 | 8089 | 8448 | 7125 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |
| 1700    | 2.             | 0.  | 2.  | 3,0  | 09650 | 5119 | 9668 | 0401 | 794 |
| 1701    | 3.             | 1.  | 45. | 17,2 | 12691 | 5141 | 8846 | 9582 | 8;1 |
| 1702    | 0.             | 14. | 10. | 37,7 | 15703 | 5066 | 7932 | 3725 | 947 |
| 1703    | 1.             | 15. | 53. | 51,9 | 18745 | 5088 | 7108 | 2908 | 024 |
| B. 1704 | 1.             | 17. | 37. | 6,1  | 21787 | 5110 | 6284 | 2091 | 101 |
| 1705    | 2.             | 19. | 20. | 20,3 | 24828 | 5132 | 5460 | 1274 | 178 |
| 1706    | 0.             | 7.  | 45. | 40,8 | 27840 | 5057 | 4549 | 5415 | 254 |
| 1707    | 1.             | 9.  | 28. | 55,0 | 30882 | 5080 | 3728 | 4597 | 331 |
| B. 1708 | 1.             | 11. | 12. | 9,3  | 33924 | 5102 | 2906 | 3779 | 408 |
| 1709    | 2.             | 12. | 55. | 23,5 | 00966 | 5124 | 2084 | 2961 | 485 |
| 1710    | 0.             | 1.  | 20. | 44,0 | 03978 | 5049 | 1173 | 7102 | 561 |
| 1711    | 1.             | 3.  | 3.  | 58,2 | 07020 | 5071 | 0350 | 6285 | 638 |
| B. 1712 | 1.             | 4.  | 47. | 12,4 | 10060 | 5093 | 9527 | 5468 | 715 |
| 1713    | 2.             | 6.  | 30. | 26,6 | 13102 | 5116 | 8703 | 4650 | 792 |
| 1714    | 3.             | 8.  | 13. | 40,8 | 16144 | 5138 | 7879 | 3834 | 869 |
| 1715    | 0.             | 20. | 39. | 1,3  | 19156 | 5063 | 6966 | 7976 | 945 |
| B. 1716 | 0.             | 22. | 22. | 15,5 | 22198 | 5085 | 6143 | 7159 | 022 |
| 1717    | 2.             | 0.  | 5.  | 29,7 | 25240 | 5107 | 5319 | 6341 | 099 |
| 1718    | 3.             | 1.  | 48. | 44,0 | 28281 | 5129 | 4499 | 5523 | 176 |
| 1719    | 0.             | 14. | 14. | 4,4  | 31294 | 5054 | 3588 | 9664 | 252 |
| B. 1720 | 0.             | 15. | 57. | 18,7 | 34335 | 5077 | 2767 | 8845 | 329 |
| 1721    | 1.             | 17. | 40. | 32,9 | 01377 | 5098 | 1945 | 8028 | 405 |
| 1722    | 2.             | 19. | 23. | 47,1 | 04419 | 5121 | 1121 | 7210 | 482 |
| 1723    | 0.             | 7.  | 49. | 7,6  | 07431 | 5046 | 0210 | 1352 | 559 |
| B. 1724 | 0.             | 9.  | 32. | 21,8 | 10473 | 5068 | 9385 | 0535 | 636 |
| 1725    | 1.             | 11. | 15. | 36,0 | 13514 | 5090 | 8563 | 9718 | 712 |
| 1726    | 2.             | 12. | 58. | 50,2 | 16555 | 5113 | 7740 | 8901 | 789 |
| 1727    | 0.             | 1.  | 24. | 10,7 | 19567 | 5038 | 6827 | 3042 | 865 |
| B. 1728 | 0.             | 3.  | 7.  | 24,9 | 22609 | 5060 | 6006 | 2224 | 942 |
| 1729    | 1.             | 4.  | 50. | 39,1 | 25651 | 5082 | 5184 | 1406 | 019 |
| 1730    | 2.             | 6.  | 33. | 53,4 | 28693 | 5104 | 4362 | 0588 | 096 |
| 1731    | 3.             | 8.  | 17. | 7,6  | 31734 | 5127 | 3540 | 9770 | 173 |
| B. 1732 | 3.             | 10. | 0.  | 21,8 | 34776 | 5149 | 2717 | 8952 | 250 |
| 1733    | 0.             | 22. | 25. | 42,3 | 01788 | 5074 | 1805 | 3094 | 326 |
| 1734    | 2.             | 0.  | 8.  | 56,5 | 04830 | 5096 | 0982 | 2278 | 403 |
| 1735    | 3.             | 1.  | 52. | 10,7 | 07871 | 5118 | 0159 | 1460 | 480 |
| B. 1736 | 3.             | 3.  | 35. | 24,9 | 10913 | 5140 | 9337 | 0642 | 557 |
| 1737    | 0.             | 16. | 0.  | 45,4 | 13925 | 5065 | 8424 | 4784 | 633 |
| 1738    | 1.             | 17. | 43. | 59,6 | 16966 | 5088 | 7601 | 3966 | 710 |
| 1739    | 2.             | 19. | 27. | 13,8 | 20008 | 5110 | 6779 | 3149 | 787 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | E   | F   | G   | H    | I    | K    | L    |
|---------|-----|-----|-----|------|------|------|------|
| 1700    | 878 | 786 | 702 | 9093 | 8952 | 9300 | 8303 |
| 1701    | 960 | 546 | 456 | 9939 | 9816 | 0286 | 9484 |
| 1702    | 042 | 298 | 203 | 0777 | 0673 | 1197 | 0653 |
| 1703    | 125 | 058 | 957 | 1623 | 1538 | 2117 | 1833 |
| B. 1704 | 207 | 817 | 711 | 2468 | 2403 | 3038 | 3014 |
| 1705    | 290 | 577 | 465 | 3313 | 3268 | 3957 | 4195 |
| 1706    | 372 | 329 | 211 | 4151 | 4122 | 4866 | 5362 |
| 1707    | 454 | 088 | 965 | 4295 | 4985 | 5784 | 6540 |
| B. 1708 | 536 | 848 | 719 | 5839 | 5848 | 6702 | 7719 |
| 1709    | 619 | 608 | 473 | 6684 | 6711 | 7621 | 8898 |
| 1710    | 701 | 360 | 220 | 7520 | 7566 | 8530 | 0065 |
| 1711    | 783 | 119 | 974 | 8365 | 8430 | 9449 | 1244 |
| B. 1712 | 866 | 879 | 728 | 9211 | 9294 | 0369 | 2425 |
| 1713    | 948 | 638 | 482 | 0057 | 0159 | 1289 | 3605 |
| 1714    | 031 | 398 | 236 | 0902 | 1024 | 2208 | 4785 |
| 1715    | 113 | 150 | 982 | 1741 | 1881 | 3120 | 5955 |
| B. 1716 | 195 | 910 | 736 | 2586 | 2745 | 4039 | 7135 |
| 1717    | 278 | 669 | 490 | 3431 | 3608 | 4958 | 8314 |
| 1718    | 360 | 429 | 244 | 4275 | 4471 | 5876 | 9493 |
| 1719    | 442 | 181 | 991 | 5111 | 5326 | 6785 | 0659 |
| B. 1720 | 524 | 941 | 745 | 5954 | 6188 | 7703 | 1838 |
| 1721    | 607 | 700 | 499 | 6798 | 7051 | 8621 | 3016 |
| 1722    | 689 | 460 | 253 | 7644 | 7916 | 9541 | 4197 |
| 1723    | 771 | 212 | 999 | 8481 | 8771 | 0451 | 5365 |
| B. 1724 | 854 | 972 | 753 | 9328 | 9637 | 1372 | 6546 |
| 1725    | 936 | 731 | 507 | 0173 | 0501 | 2290 | 7725 |
| 1726    | 019 | 491 | 261 | 1019 | 1365 | 3210 | 8906 |
| 1727    | 100 | 243 | 008 | 1855 | 2220 | 4119 | 0073 |
| B. 1728 | 183 | 002 | 762 | 2698 | 3082 | 5037 | 1251 |
| 1729    | 266 | 762 | 516 | 3543 | 3946 | 5956 | 2431 |
| 1730    | 348 | 522 | 269 | 4387 | 4809 | 6874 | 3609 |
| 1731    | 431 | 281 | 023 | 5232 | 5672 | 7793 | 4788 |
| B. 1732 | 513 | 041 | 777 | 6077 | 6536 | 8712 | 5968 |
| 1733    | 595 | 793 | 524 | 6914 | 7392 | 9622 | 7136 |
| 1734    | 678 | 553 | 278 | 7760 | 8256 | 0542 | 8316 |
| 1735    | 760 | 312 | 032 | 8605 | 9120 | 1461 | 9495 |
| B. 1736 | 843 | 072 | 786 | 9450 | 9985 | 2380 | 0676 |
| 1737    | 924 | 824 | 532 | 0287 | 0840 | 3290 | 1844 |
| 1738    | 007 | 583 | 286 | 1132 | 1704 | 4209 | 3023 |
| 1739    | 089 | 343 | 040 | 1976 | 2567 | 5127 | 4202 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |
| B. 1740 | 2.             | 21. | 10. | 28,1 | 23050 | 5132 | 5957 | 2331 | 864 |
| 1741    | 0.             | 9.  | 35. | 48,6 | 26062 | 5057 | 5045 | 6473 | 940 |
| 1742    | 1.             | 11. | 19. | 2,8  | 29104 | 5079 | 4223 | 5655 | 017 |
| 1743    | 2.             | 13. | 2.  | 17,0 | 32146 | 5101 | 3400 | 4837 | 094 |
| B. 1744 | 2.             | 14. | 45. | 31,2 | 35187 | 5124 | 2578 | 4020 | 171 |
| 1745    | 0.             | 3.  | 10. | 51,7 | 02199 | 5049 | 1666 | 8162 | 247 |
| 1746    | 1.             | 4.  | 54. | 5,9  | 05240 | 5071 | 0845 | 7343 | 323 |
| 1747    | 2.             | 6.  | 37. | 20,1 | 08282 | 5093 | 0024 | 6525 | 400 |
| B. 1748 | 2.             | 8.  | 20. | 34,3 | 11324 | 5115 | 9202 | 5707 | 477 |
| 1749    | 3.             | 10. | 3.  | 48,6 | 14365 | 5137 | 8380 | 4889 | 554 |
| 1750    | 0.             | 22. | 29. | 9,0  | 17377 | 5062 | 7468 | 9031 | 630 |
| 1751    | 2.             | 0.  | 12. | 23,3 | 20419 | 5085 | 6643 | 8214 | 707 |
| B. 1752 | 2.             | 1.  | 55. | 37,5 | 23461 | 5107 | 5820 | 7396 | 784 |
| 1753    | 3.             | 3.  | 38. | 51,7 | 26502 | 5129 | 4994 | 6580 | 861 |
| 1754    | 0.             | 16. | 4.  | 12,2 | 29514 | 5054 | 4082 | 0722 | 937 |
| 1755    | 1.             | 17. | 47. | 26,4 | 32556 | 5076 | 3260 | 9905 | 014 |
| B. 1756 | 1.             | 19. | 30. | 40,6 | 35597 | 5098 | 2438 | 9087 | 091 |
| 1757    | 2.             | 21. | 13. | 54,8 | 02639 | 5121 | 1617 | 8268 | 168 |
| 1758    | 0.             | 9.  | 39. | 15,3 | 05651 | 5046 | 0707 | 2409 | 244 |
| 1759    | 1.             | 11. | 22. | 29,5 | 08693 | 5068 | 9885 | 1591 | 321 |
| B. 1760 | 1.             | 13. | 5.  | 43,7 | 11734 | 5090 | 9064 | 0773 | 398 |
| 1761    | 2.             | 14. | 48. | 58,0 | 14776 | 5112 | 8240 | 9956 | 475 |
| 1762    | 0.             | 3.  | 14. | 18,4 | 17788 | 5037 | 7327 | 4099 | 551 |
| 1763    | 1.             | 4.  | 57. | 32,6 | 20830 | 5059 | 6503 | 3282 | 628 |
| B. 1764 | 1.             | 6.  | 40. | 46,9 | 23871 | 5082 | 5678 | 2465 | 705 |
| 1765    | 2.             | 8.  | 24. | 1,1  | 26913 | 5104 | 4855 | 1647 | 782 |
| 1766    | 3.             | 10. | 7.  | 15,3 | 29954 | 5126 | 4034 | 0828 | 859 |
| 1767    | 0.             | 22. | 32. | 35,8 | 32966 | 5051 | 3123 | 4970 | 935 |
| B. 1768 | 1.             | 0.  | 15. | 50,0 | 00008 | 5073 | 2304 | 4151 | 012 |
| 1769    | 2.             | 1.  | 59. | 4,2  | 03049 | 5096 | 1480 | 3333 | 089 |
| 1770    | 3.             | 3.  | 42. | 18,4 | 06091 | 5118 | 0657 | 2515 | 166 |
| 1771    | 0.             | 16. | 7.  | 38,9 | 09103 | 5043 | 9746 | 6657 | 242 |
| B. 1772 | 0.             | 17. | 50. | 53,1 | 12145 | 5065 | 8922 | 5840 | 319 |
| 1773    | 1.             | 19. | 34. | 7,4  | 15186 | 5087 | 8098 | 5024 | 396 |
| 1774    | 2.             | 21. | 17. | 21,6 | 18228 | 5109 | 7274 | 4207 | 473 |
| 1775    | 0.             | 9.  | 42. | 42,1 | 21239 | 5034 | 6361 | 8349 | 549 |
| B. 1776 | 0.             | 11. | 25. | 56,3 | 24281 | 5057 | 5539 | 7531 | 626 |
| 1777    | 1.             | 13. | 9.  | 10,5 | 27323 | 5079 | 4717 | 6713 | 703 |
| 1778    | 2.             | 14. | 52. | 24,7 | 30364 | 5101 | 3894 | 5896 | 779 |
| 1779    | 0.             | 3.  | 17. | 45,2 | 33377 | 5026 | 2985 | 0036 | 855 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS. |      | E   | F   | G   | H    | I    | K    | L    |
|--------|------|-----|-----|-----|------|------|------|------|
| B.     | 1740 | 172 | 103 | 794 | 2821 | 3430 | 6046 | 5381 |
|        | 1741 | 254 | 855 | 541 | 3658 | 4286 | 6956 | 6549 |
|        | 1742 | 336 | 614 | 295 | 4502 | 5149 | 7875 | 7728 |
|        | 1743 | 419 | 374 | 049 | 5347 | 6013 | 8794 | 8908 |
| B.     | 1744 | 501 | 133 | 803 | 6192 | 6877 | 9713 | 0087 |
|        | 1745 | 583 | 886 | 549 | 7028 | 7731 | 0620 | 1254 |
|        | 1746 | 665 | 645 | 303 | 7872 | 8594 | 1539 | 2432 |
|        | 1747 | 748 | 405 | 057 | 8716 | 9457 | 2457 | 3611 |
| B.     | 1748 | 830 | 164 | 811 | 9560 | 0319 | 3375 | 4789 |
|        | 1749 | 913 | 924 | 565 | 0405 | 1183 | 4294 | 5969 |
|        | 1750 | 994 | 676 | 312 | 1241 | 2038 | 5204 | 7137 |
|        | 1751 | 077 | 436 | 066 | 2088 | 2904 | 6125 | 8318 |
| B.     | 1752 | 160 | 195 | 820 | 2934 | 3769 | 7045 | 9498 |
|        | 1753 | 242 | 955 | 574 | 3781 | 4635 | 7965 | 0680 |
|        | 1754 | 324 | 707 | 320 | 4619 | 5491 | 8877 | 1849 |
|        | 1755 | 407 | 467 | 074 | 5464 | 6355 | 9796 | 3028 |
| B.     | 1756 | 489 | 226 | 828 | 6308 | 7217 | 0713 | 4206 |
|        | 1757 | 572 | 986 | 582 | 7151 | 8080 | 1631 | 5385 |
|        | 1758 | 653 | 738 | 329 | 7986 | 8933 | 2539 | 6551 |
|        | 1759 | 736 | 497 | 083 | 8830 | 9796 | 3457 | 7729 |
|        | 1760 | 818 | 257 | 836 | 9674 | 0659 | 4375 | 8908 |
|        | 1761 | 901 | 017 | 590 | 0520 | 1524 | 5295 | 0088 |
|        | 1762 | 983 | 767 | 337 | 1358 | 2380 | 6206 | 1257 |
|        | 1763 | 065 | 528 | 091 | 2204 | 3246 | 7127 | 2438 |
| B.     | 1764 | 148 | 288 | 845 | 3051 | 4111 | 8048 | 3620 |
|        | 1765 | 230 | 047 | 599 | 3896 | 4975 | 8967 | 4799 |
|        | 1766 | 313 | 807 | 353 | 4740 | 5838 | 9884 | 5977 |
|        | 1767 | 394 | 559 | 099 | 5576 | 6692 | 0793 | 7144 |
| B.     | 1768 | 477 | 319 | 853 | 6420 | 7555 | 1711 | 8323 |
|        | 1769 | 559 | 078 | 607 | 7264 | 8418 | 2629 | 9501 |
|        | 1770 | 642 | 838 | 361 | 8109 | 9281 | 3548 | 0681 |
|        | 1771 | 724 | 590 | 108 | 8945 | 0137 | 4458 | 1849 |
| B.     | 1772 | 806 | 350 | 862 | 9791 | 0998 | 5375 | 3026 |
|        | 1773 | 889 | 109 | 616 | 0638 | 1867 | 6299 | 4210 |
|        | 1774 | 971 | 869 | 370 | 1484 | 2732 | 7219 | 5391 |
|        | 1775 | 053 | 621 | 116 | 2322 | 3588 | 8130 | 6560 |
| B.     | 1776 | 136 | 381 | 870 | 3165 | 4452 | 9049 | 7739 |
|        | 1777 | 218 | 140 | 624 | 4011 | 5315 | 9966 | 8917 |
|        | 1778 | 301 | 900 | 378 | 4855 | 6178 | 0885 | 0097 |
|        | 1779 | 382 | 652 | 125 | 5690 | 7032 | 1793 | 1263 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |
| B. 1780 | 0.             | 5.  | 0.  | 59,4 | 00418 | 5048 | 2162 | 9219 | 932 |
| 1781    | 1.             | 6.  | 44. | 13,6 | 03460 | 5070 | 1340 | 8400 | 009 |
| 1782    | 2.             | 8.  | 27. | 27,8 | 06501 | 5093 | 0517 | 7584 | 086 |
| 1783    | 3.             | 10. | 10. | 42,0 | 09543 | 5115 | 0693 | 6766 | 163 |
| B. 1784 | 3.             | 11. | 53. | 56,2 | 12584 | 5137 | 8871 | 5948 | 240 |
| 1785    | 1.             | 0.  | 19. | 16,7 | 15596 | 5062 | 7958 | 0091 | 316 |
| 1786    | 2.             | 2.  | 2.  | 30,9 | 18638 | 5084 | 7165 | 9273 | 393 |
| 1787    | 3.             | 3.  | 45. | 45,1 | 21680 | 5106 | 6313 | 8456 | 470 |
| B. 1788 | 3.             | 5.  | 28. | 59,4 | 24721 | 5129 | 5491 | 7637 | 547 |
| 1789    | 0.             | 17. | 54. | 19,8 | 27733 | 5054 | 4579 | 1779 | 623 |
| 1790    | 1.             | 19. | 37. | 34,1 | 30775 | 5076 | 3758 | 0961 | 700 |
| 1791    | 2.             | 21. | 20. | 48,3 | 33816 | 5098 | 2935 | 0143 | 777 |
| B. 1792 | 2.             | 23. | 4.  | 2,5  | 00858 | 5120 | 2113 | 9326 | 854 |
| 1793    | 0.             | 11. | 29. | 23,0 | 03870 | 5045 | 1201 | 3468 | 930 |
| 1794    | 1.             | 13. | 12. | 37,2 | 06911 | 5067 | 0377 | 2650 | 007 |
| 1795    | 2.             | 14. | 55. | 51,4 | 09953 | 5090 | 9555 | 1832 | 084 |
| B. 1796 | 2.             | 16. | 39. | 5,6  | 12995 | 5112 | 8732 | 1015 | 161 |
| 1797    | 0.             | 5.  | 4.  | 26,1 | 16007 | 5037 | 7820 | 5156 | 237 |
| 1798    | 1.             | 6.  | 47. | 40,3 | 19048 | 5059 | 6997 | 4339 | 314 |
| 1799    | 2.             | 8.  | 30. | 54,5 | 22090 | 5081 | 6175 | 3521 | 391 |
| 1800    | 3.             | 10. | 14. | 8,8  | 25131 | 5104 | 5353 | 2703 | 468 |
| 1801    | 0.             | 22. | 39. | 29,2 | 28143 | 5028 | 4441 | 6845 | 544 |
| 1802    | 2.             | 0.  | 22. | 43,5 | 31185 | 5051 | 3618 | 6028 | 621 |
| B. 1803 | 3.             | 2.  | 5.  | 57,7 | 34226 | 5073 | 2796 | 5210 | 697 |
| 1804    | 3.             | 3.  | 49. | 11,9 | 01268 | 5095 | 1973 | 4392 | 774 |
| 1805    | 0.             | 16. | 14. | 32,4 | 04280 | 5020 | 1062 | 8534 | 851 |
| 1806    | 1.             | 17. | 57. | 46,6 | 07321 | 5042 | 0241 | 7715 | 927 |
| 1807    | 2.             | 19. | 41. | 0,8  | 10363 | 5065 | 9420 | 6897 | 004 |
| B. 1808 | 2.             | 21. | 24. | 15,0 | 13404 | 5087 | 8599 | 6079 | 081 |
| 1809    | 0.             | 9.  | 49. | 35,5 | 16416 | 5012 | 7687 | 0221 | 157 |
| 1810    | 1.             | 11. | 32. | 49,7 | 19458 | 5034 | 6863 | 9403 | 234 |
| 1811    | 2.             | 13. | 16. | 3,9  | 22499 | 5056 | 6039 | 8586 | 311 |
| B. 1812 | 2.             | 14. | 59. | 18,2 | 25541 | 5078 | 5214 | 7769 | 388 |
| 1813    | 0.             | 3.  | 24. | 38,6 | 28553 | 5003 | 4301 | 1912 | 464 |
| 1814    | 1.             | 5.  | 7.  | 52,9 | 31594 | 5026 | 3478 | 1095 | 541 |
| 1815    | 2.             | 6.  | 51. | 7,1  | 34636 | 5048 | 2656 | 0277 | 618 |
| B. 1816 | 2.             | 8.  | 34. | 21,3 | 01678 | 5070 | 1835 | 9459 | 695 |
| 1817    | 3.             | 10. | 17. | 35,5 | 04719 | 5092 | 1013 | 8641 | 772 |
| 1818    | 0.             | 22. | 42. | 56,0 | 07731 | 5017 | 0103 | 2782 | 848 |
| 1819    | 2.             | 0.  | 26. | 10,2 | 10772 | 5039 | 9283 | 1963 | 924 |
| B. 1820 | 2.             | 2.  | 9.  | 24,4 | 13814 | 5063 | 8461 | 1144 | 001 |



TABLE XVII. *Epochs of the mean Conjunctions of the second Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS. |      | E   | F   | G   | H    | I    | K    | L    |
|--------|------|-----|-----|-----|------|------|------|------|
| B.     | 1780 | 465 | 411 | 879 | 6535 | 7896 | 2712 | 2442 |
|        | 1781 | 547 | 171 | 633 | 7379 | 8758 | 3630 | 3621 |
|        | 1782 | 630 | 931 | 387 | 8225 | 9623 | 4550 | 4801 |
|        | 1783 | 713 | 690 | 141 | 9071 | 0488 | 5470 | 5981 |
|        | 1784 | 795 | 450 | 894 | 9916 | 1351 | 6389 | 7163 |
| B.     | 1785 | 877 | 202 | 641 | 0753 | 2208 | 7300 | 8330 |
|        | 1786 | 959 | 961 | 395 | 1598 | 3071 | 8218 | 9509 |
|        | 1787 | 042 | 721 | 149 | 2443 | 3935 | 9137 | 0688 |
|        | 1788 | 124 | 481 | 903 | 3287 | 4798 | 0055 | 1867 |
|        | 1789 | 206 | 233 | 650 | 4124 | 5653 | 0965 | 3035 |
| B.     | 1790 | 289 | 992 | 403 | 4968 | 6516 | 1883 | 4213 |
|        | 1791 | 371 | 752 | 157 | 5813 | 7380 | 2802 | 5393 |
|        | 1792 | 454 | 511 | 911 | 6658 | 8243 | 3721 | 6572 |
|        | 1793 | 535 | 264 | 658 | 7494 | 9099 | 4631 | 7740 |
|        | 1794 | 618 | 023 | 412 | 8340 | 9963 | 5551 | 8920 |
| B.     | 1795 | 701 | 783 | 166 | 9185 | 0827 | 6470 | 0100 |
|        | 1796 | 783 | 542 | 920 | 0030 | 1691 | 7388 | 1279 |
|        | 1797 | 865 | 295 | 666 | 0867 | 2546 | 8298 | 2447 |
|        | 1798 | 947 | 054 | 420 | 1712 | 3410 | 9217 | 3626 |
|        | 1799 | 030 | 814 | 174 | 2557 | 4274 | 0136 | 4806 |
| B.     | 1800 | 112 | 573 | 928 | 3401 | 5137 | 1055 | 5985 |
|        | 1801 | 194 | 325 | 675 | 4238 | 5993 | 1965 | 7153 |
|        | 1802 | 277 | 085 | 429 | 5083 | 6857 | 2884 | 8333 |
|        | 1803 | 359 | 845 | 183 | 5928 | 7720 | 3803 | 9512 |
|        | 1804 | 442 | 604 | 937 | 6773 | 8584 | 4722 | 0691 |
| B.     | 1805 | 523 | 356 | 683 | 7609 | 9438 | 5631 | 1858 |
|        | 1806 | 606 | 116 | 437 | 8451 | 0300 | 6546 | 3036 |
|        | 1807 | 688 | 875 | 191 | 9295 | 1163 | 7465 | 4214 |
|        | 1808 | 770 | 635 | 945 | 0139 | 2025 | 8383 | 5392 |
|        | 1809 | 852 | 387 | 692 | 0976 | 2881 | 9293 | 6560 |
| B.     | 1810 | 935 | 147 | 446 | 1822 | 3746 | 0213 | 7741 |
|        | 1811 | 017 | 906 | 200 | 2669 | 4611 | 1134 | 8922 |
|        | 1812 | 100 | 666 | 954 | 3516 | 5477 | 2055 | 0103 |
|        | 1813 | 182 | 418 | 700 | 4353 | 6333 | 2966 | 1273 |
|        | 1814 | 265 | 178 | 454 | 5199 | 7198 | 3884 | 2453 |
| B.     | 1815 | 347 | 937 | 208 | 6043 | 8061 | 4804 | 3631 |
|        | 1816 | 430 | 697 | 962 | 6887 | 8924 | 5722 | 4810 |
|        | 1817 | 522 | 456 | 716 | 7731 | 9786 | 6639 | 5988 |
|        | 1818 | 603 | 209 | 463 | 8566 | 0640 | 7547 | 7154 |
|        | 1819 | 776 | 968 | 217 | 9410 | 1501 | 8464 | 8331 |
| B.     | 1820 | 858 | 728 | 970 | 0253 | 2364 | 9382 | 9510 |



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.             | Change of the<br>Mean Conjunction. |     |     |      | A    | S    | B    | C    | D  |
|---------------------|------------------------------------|-----|-----|------|------|------|------|------|----|
|                     | D.                                 | H.  | M.  | S.   |      |      |      |      |    |
| January.            | 3.                                 | 13. | 17. | 53,7 | 30   | 97   | 89   | 5040 | 1  |
|                     | 7.                                 | 2.  | 35. | 47,5 | 59   | 195  | 178  | 081  | 1  |
|                     | 10.                                | 15. | 53. | 41,2 | 89   | 292  | 267  | 5122 | 2  |
|                     | 14.                                | 5.  | 11. | 34,9 | 118  | 389  | 356  | 162  | 3  |
|                     | 17.                                | 18. | 29. | 28,7 | 148  | 487  | 446  | 5203 | 4  |
|                     | 21.                                | 7.  | 47. | 22,4 | 177  | 584  | 535  | 244  | 4  |
| January.            | 24.                                | 21. | 5.  | 16,1 | 207  | 681  | 624  | 5284 | 5  |
|                     | 28.                                | 10. | 23. | 9,8  | 236  | 778  | 713  | 325  | 6  |
|                     | 31.                                | 23. | 41. | 3,6  | 266  | 876  | 802  | 5365 | 7  |
| February.           | 4.                                 | 12. | 58. | 57,3 | 295  | 973  | 891  | 406  | 7  |
|                     | 8.                                 | 2.  | 16. | 51,0 | 325  | 1070 | 980  | 5447 | 8  |
|                     | 11.                                | 15. | 34. | 44,8 | 354  | 1168 | 1069 | 487  | 9  |
|                     | 15.                                | 4.  | 52. | 38,5 | 384  | 1265 | 1158 | 5528 | 10 |
|                     | 18.                                | 18. | 10. | 32,2 | 413  | 1362 | 1247 | 568  | 10 |
|                     | 22.                                | 7.  | 28. | 26,0 | 443  | 1460 | 1337 | 5609 | 11 |
| February.<br>March. | 25.                                | 20. | 46. | 19,7 | 472  | 1557 | 1426 | 650  | 12 |
|                     | 1.                                 | 10. | 4.  | 13,4 | 502  | 1654 | 1515 | 5690 | 13 |
|                     | 4.                                 | 23. | 22. | 7,1  | 532  | 1751 | 1604 | 731  | 13 |
|                     | 8.                                 | 12. | 40. | 0,9  | 561  | 1849 | 1693 | 5771 | 14 |
|                     | 12.                                | 1.  | 57. | 54,6 | 591  | 1946 | 1782 | 812  | 15 |
|                     | 15.                                | 15. | 15. | 48,3 | 620  | 2043 | 1871 | 5853 | 16 |
|                     | 19.                                | 4.  | 33. | 42,1 | 650  | 2141 | 1960 | 893  | 16 |
|                     | 22.                                | 17. | 51. | 35,8 | 679  | 2238 | 2049 | 5934 | 17 |
|                     | 26.                                | 7.  | 9.  | 29,5 | 709  | 2335 | 2138 | 975  | 18 |
| March.<br>April     | 29.                                | 20. | 27. | 23,3 | 738  | 2433 | 2228 | 6015 | 19 |
|                     | 2.                                 | 9.  | 45. | 17,0 | 768  | 2530 | 2317 | 1056 | 19 |
|                     | 5.                                 | 23. | 3.  | 10,7 | 797  | 2627 | 2406 | 6096 | 20 |
|                     | 9.                                 | 12. | 21. | 4,4  | 827  | 2724 | 2495 | 1137 | 21 |
|                     | 13.                                | 1.  | 38. | 58,2 | 856  | 2822 | 2584 | 6178 | 22 |
|                     | 16.                                | 14. | 56. | 51,9 | 886  | 2919 | 2673 | 1218 | 22 |
| April.              | 20.                                | 4.  | 14. | 45,6 | 915  | 3016 | 2762 | 6259 | 23 |
|                     | 23.                                | 17. | 32. | 39,4 | 945  | 3114 | 2851 | 1299 | 24 |
|                     | 27.                                | 6.  | 50. | 33,1 | 974  | 3211 | 2940 | 6340 | 25 |
|                     | 30.                                | 20. | 8.  | 26,8 | 1004 | 3308 | 3029 | 1381 | 25 |

In Bissextile Years, add One Day in the Months of January and February.



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.             | Change<br>&c. | E  | F   | G   | H   | I   | K   | L   |
|---------------------|---------------|----|-----|-----|-----|-----|-----|-----|
|                     | D.            |    |     |     |     |     |     |     |
| January.            | 3             | 1  | 7   | 7   | 8   | 8   | 9   | 11  |
|                     | 7             | 2  | 15  | 15  | 16  | 17  | 18  | 23  |
|                     | 10            | 2  | 22  | 22  | 25  | 25  | 27  | 34  |
|                     | 14            | 3  | 29  | 29  | 33  | 34  | 36  | 46  |
|                     | 17            | 4  | 37  | 37  | 41  | 42  | 45  | 57  |
|                     | 21            | 5  | 44  | 44  | 49  | 50  | 54  | 69  |
| January.            | 24            | 6  | 52  | 51  | 57  | 59  | 62  | 80  |
|                     | 28            | 6  | 59  | 59  | 66  | 67  | 71  | 92  |
|                     | 31            | 7  | 66  | 66  | 74  | 75  | 80  | 103 |
| February.           | 4             | 8  | 74  | 73  | 82  | 84  | 89  | 115 |
|                     | 8             | 9  | 81  | 80  | 90  | 92  | 98  | 126 |
|                     | 11            | 10 | 88  | 88  | 98  | 101 | 107 | 137 |
|                     | 15            | 10 | 96  | 92  | 107 | 109 | 116 | 149 |
|                     | 18            | 11 | 103 | 102 | 115 | 117 | 125 | 160 |
|                     | 22            | 12 | 111 | 110 | 123 | 126 | 134 | 172 |
| February.<br>March. | 25            | 13 | 118 | 117 | 131 | 134 | 143 | 183 |
|                     | 1             | 14 | 125 | 124 | 139 | 143 | 152 | 195 |
|                     | 4             | 14 | 133 | 132 | 148 | 151 | 161 | 206 |
|                     | 8             | 15 | 140 | 139 | 156 | 159 | 170 | 218 |
|                     | 12            | 16 | 147 | 146 | 164 | 168 | 178 | 229 |
|                     | 15            | 17 | 155 | 154 | 172 | 176 | 187 | 240 |
|                     | 19            | 18 | 162 | 161 | 180 | 184 | 196 | 252 |
|                     | 22            | 18 | 170 | 168 | 189 | 193 | 205 | 263 |
|                     | 26            | 19 | 177 | 176 | 197 | 201 | 214 | 275 |
| March.<br>April.    | 29            | 20 | 184 | 183 | 205 | 210 | 223 | 286 |
|                     | 2             | 21 | 192 | 190 | 213 | 218 | 232 | 298 |
|                     | 5             | 22 | 199 | 198 | 221 | 226 | 241 | 309 |
|                     | 9             | 22 | 206 | 205 | 230 | 235 | 250 | 321 |
|                     | 13            | 23 | 214 | 212 | 238 | 243 | 259 | 332 |
|                     | 16            | 24 | 221 | 220 | 246 | 251 | 268 | 344 |
| April.              | 20            | 25 | 229 | 227 | 254 | 260 | 277 | 355 |
|                     | 23            | 26 | 236 | 234 | 262 | 268 | 285 | 366 |
|                     | 27            | 26 | 243 | 241 | 271 | 277 | 294 | 378 |
|                     | 30            | 27 | 251 | 249 | 279 | 285 | 303 | 389 |



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.          | Change of the<br>Mean Conjunction. |     |     |      | A    | S    | B    | C    | D  |
|------------------|------------------------------------|-----|-----|------|------|------|------|------|----|
|                  | D.                                 | H.  | M.  | S.   |      |      |      |      |    |
| May              | 4.                                 | 9.  | 26. | 20,6 | 1034 | 3406 | 3119 | 6421 | 26 |
|                  | 7.                                 | 22. | 44. | 14,3 | 1063 | 3503 | 3208 | 1462 | 27 |
|                  | 11.                                | 12. | 2.  | 8,0  | 1093 | 3600 | 3297 | 6502 | 28 |
|                  | 15.                                | 1.  | 20. | 1,7  | 1122 | 3698 | 3386 | 1543 | 28 |
|                  | 18.                                | 14. | 37. | 55,5 | 1152 | 3795 | 3475 | 6584 | 29 |
|                  | 22.                                | 3.  | 55. | 49,2 | 1181 | 3892 | 3564 | 1624 | 30 |
| May.<br>June.    | 25.                                | 17. | 13. | 42,9 | 1211 | 3989 | 3653 | 6665 | 31 |
|                  | 29.                                | 6.  | 31. | 36,7 | 1240 | 4087 | 3742 | 1705 | 31 |
|                  | 1.                                 | 19. | 49. | 30,4 | 1270 | 4184 | 3831 | 6746 | 32 |
|                  | 5.                                 | 9.  | 7.  | 24,1 | 1299 | 4281 | 3920 | 1787 | 33 |
|                  | 8.                                 | 22. | 25. | 17,9 | 1329 | 4379 | 4010 | 6827 | 34 |
|                  | 12.                                | 11. | 43. | 11,6 | 1358 | 4476 | 4099 | 1868 | 34 |
|                  | 16.                                | 1.  | 1.  | 5,3  | 1388 | 4573 | 4189 | 6908 | 35 |
|                  | 19.                                | 14. | 18. | 59,0 | 1417 | 4671 | 4277 | 1949 | 36 |
|                  | 23.                                | 3.  | 36. | 52,8 | 1447 | 4768 | 4366 | 6990 | 37 |
| June.<br>July.   | 26.                                | 16. | 54. | 46,5 | 1476 | 4865 | 4455 | 2030 | 37 |
|                  | 30.                                | 6.  | 12. | 40,2 | 1506 | 4962 | 4544 | 7071 | 38 |
|                  | 3.                                 | 19. | 30. | 34,0 | 1536 | 5060 | 4633 | 2111 | 39 |
|                  | 7.                                 | 8.  | 48. | 27,7 | 1565 | 5157 | 4722 | 7152 | 40 |
|                  | 10.                                | 22. | 6.  | 21,4 | 1595 | 5254 | 4811 | 2193 | 40 |
|                  | 14.                                | 11. | 24. | 15,2 | 1624 | 5352 | 4901 | 7233 | 41 |
|                  | 18.                                | 0.  | 42. | 8,9  | 1654 | 5449 | 4990 | 2274 | 42 |
|                  | 21.                                | 14. | 0.  | 2,6  | 1684 | 5546 | 5079 | 7314 | 43 |
|                  | 25.                                | 3.  | 17. | 56,4 | 1713 | 5644 | 5168 | 2355 | 43 |
| July.<br>August. | 28.                                | 16. | 35. | 50,1 | 1742 | 5741 | 5257 | 7396 | 44 |
|                  | 1.                                 | 5.  | 53. | 43,8 | 1772 | 5838 | 5346 | 2436 | 45 |
|                  | 4.                                 | 19. | 11. | 37,5 | 1801 | 5935 | 5435 | 7477 | 45 |
|                  | 8.                                 | 8.  | 29. | 31,3 | 1831 | 6033 | 5524 | 2518 | 46 |
|                  | 11.                                | 21. | 47. | 25,0 | 1860 | 6130 | 5613 | 7558 | 47 |
|                  | 15.                                | 11. | 5.  | 18,7 | 1890 | 6227 | 5702 | 2599 | 48 |
| August.          | 19.                                | 0.  | 23. | 12,5 | 1919 | 6325 | 5792 | 7639 | 49 |
|                  | 22.                                | 13. | 41. | 6,2  | 1949 | 6422 | 5881 | 2680 | 49 |
|                  | 26.                                | 2.  | 58. | 59,9 | 1978 | 6519 | 5970 | 7721 | 50 |
|                  | 29.                                | 16. | 16. | 53,7 | 2008 | 6617 | 6059 | 2761 | 51 |



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.          | Change<br>&c. | E  | F   | G   | H   | I   | K   | L   |
|------------------|---------------|----|-----|-----|-----|-----|-----|-----|
|                  | D.            |    |     |     |     |     |     |     |
| May.             | 4             | 28 | 258 | 256 | 287 | 293 | 312 | 401 |
|                  | 7             | 29 | 265 | 263 | 295 | 302 | 321 | 412 |
|                  | 11            | 30 | 273 | 271 | 304 | 310 | 330 | 424 |
|                  | 15            | 30 | 280 | 278 | 312 | 319 | 339 | 435 |
|                  | 18            | 31 | 288 | 285 | 320 | 327 | 348 | 446 |
|                  | 22            | 32 | 295 | 293 | 328 | 335 | 357 | 458 |
| May.<br>June.    | 25            | 33 | 302 | 300 | 336 | 344 | 366 | 469 |
|                  | 29            | 34 | 310 | 307 | 345 | 352 | 375 | 481 |
|                  | 1             | 34 | 317 | 315 | 353 | 361 | 384 | 492 |
|                  | 5             | 35 | 324 | 322 | 361 | 369 | 393 | 504 |
|                  | 8             | 36 | 332 | 329 | 369 | 377 | 401 | 515 |
|                  | 12            | 37 | 339 | 337 | 377 | 386 | 410 | 527 |
|                  | 16            | 38 | 347 | 344 | 386 | 394 | 419 | 538 |
|                  | 19            | 38 | 354 | 351 | 394 | 403 | 428 | 550 |
|                  | 23            | 39 | 361 | 359 | 402 | 411 | 437 | 561 |
| June.<br>July.   | 26            | 40 | 369 | 366 | 410 | 419 | 446 | 573 |
|                  | 30            | 41 | 376 | 373 | 418 | 428 | 455 | 584 |
|                  | 3             | 42 | 383 | 381 | 427 | 436 | 464 | 595 |
|                  | 7             | 42 | 391 | 388 | 435 | 444 | 473 | 607 |
|                  | 10            | 43 | 398 | 395 | 443 | 453 | 482 | 618 |
|                  | 14            | 44 | 406 | 402 | 451 | 461 | 491 | 630 |
|                  | 18            | 45 | 413 | 410 | 459 | 470 | 500 | 641 |
|                  | 21            | 46 | 420 | 417 | 468 | 478 | 509 | 653 |
|                  | 25            | 46 | 428 | 425 | 476 | 486 | 517 | 664 |
| July.<br>August. | 28            | 47 | 435 | 432 | 484 | 495 | 526 | 676 |
|                  | 1             | 48 | 442 | 439 | 492 | 503 | 535 | 687 |
|                  | 4             | 49 | 450 | 446 | 500 | 512 | 544 | 698 |
|                  | 8             | 50 | 457 | 454 | 509 | 520 | 553 | 710 |
|                  | 11            | 50 | 465 | 461 | 517 | 528 | 562 | 721 |
|                  | 15            | 51 | 472 | 468 | 525 | 537 | 571 | 733 |
| August.          | 19            | 52 | 479 | 476 | 533 | 545 | 580 | 744 |
|                  | 22            | 53 | 487 | 483 | 541 | 553 | 589 | 756 |
|                  | 26            | 54 | 494 | 490 | 550 | 562 | 598 | 767 |
|                  | 29            | 54 | 501 | 498 | 558 | 570 | 607 | 779 |



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.                | Change of the<br>Mean Conjunction. |     |     |      | A    | S    | B    | C    | D  |
|------------------------|------------------------------------|-----|-----|------|------|------|------|------|----|
|                        | D.                                 | H.  | M.  | S.   |      |      |      |      |    |
| September.             | 2.                                 | 5.  | 34. | 47,5 | 2038 | 6714 | 6148 | 7802 | 52 |
|                        | 5.                                 | 18. | 52. | 41,1 | 2067 | 6811 | 6237 | 2842 | 52 |
|                        | 9.                                 | 8.  | 10. | 34,8 | 2097 | 6909 | 6326 | 7883 | 53 |
|                        | 12.                                | 21. | 28. | 28,6 | 2126 | 7006 | 6415 | 2924 | 54 |
|                        | 16.                                | 10. | 46. | 22,3 | 2156 | 7103 | 6504 | 7964 | 55 |
|                        | 20.                                | 0.  | 4.  | 16,0 | 2185 | 7200 | 6593 | 3005 | 55 |
| September.             | 23.                                | 13. | 22. | 9,8  | 2215 | 7298 | 6683 | 8045 | 56 |
|                        | 27.                                | 2.  | 40. | 3,5  | 2244 | 7395 | 6772 | 3086 | 57 |
|                        | 30.                                | 15. | 57. | 57,2 | 2274 | 7492 | 6861 | 8127 | 57 |
| October.               | 4.                                 | 5.  | 15. | 51,0 | 2303 | 7590 | 6950 | 3167 | 58 |
|                        | 7.                                 | 18. | 33. | 44,6 | 2333 | 7687 | 7039 | 8208 | 59 |
|                        | 11.                                | 7.  | 51. | 38,4 | 2362 | 7784 | 7128 | 3248 | 60 |
|                        | 14.                                | 21. | 9.  | 32,1 | 2392 | 7882 | 7217 | 8289 | 60 |
|                        | 18.                                | 10. | 27. | 25,9 | 2421 | 7979 | 7306 | 3330 | 61 |
|                        | 21.                                | 23. | 45. | 19,6 | 2451 | 8076 | 7395 | 8370 | 62 |
| October.<br>November.  | 25.                                | 13. | 3.  | 13,3 | 2480 | 8173 | 7484 | 3411 | 62 |
|                        | 29.                                | 2.  | 21. | 7,1  | 2510 | 8271 | 7574 | 8451 | 63 |
|                        | 1.                                 | 15. | 39. | 0,8  | 2540 | 8368 | 7663 | 3492 | 64 |
|                        | 5.                                 | 4.  | 56. | 54,5 | 2569 | 8465 | 7752 | 8533 | 65 |
|                        | 8.                                 | 18. | 14. | 48,2 | 2599 | 8563 | 7841 | 3573 | 66 |
|                        | 12.                                | 7.  | 32. | 42,0 | 2628 | 8660 | 7930 | 8614 | 66 |
|                        | 15.                                | 20. | 50. | 35,7 | 2658 | 8757 | 8019 | 3654 | 67 |
|                        | 19.                                | 10. | 8.  | 29,4 | 2687 | 8855 | 8108 | 8695 | 68 |
|                        | 22.                                | 23. | 26. | 23,2 | 2717 | 8952 | 8197 | 3736 | 69 |
| November.<br>December. | 26.                                | 12. | 44. | 16,9 | 2746 | 9049 | 8286 | 8776 | 69 |
|                        | 30.                                | 2.  | 2.  | 10,6 | 2776 | 9147 | 8375 | 3817 | 70 |
|                        | 3.                                 | 15. | 20. | 4,3  | 2805 | 9244 | 8465 | 8857 | 71 |
|                        | 7.                                 | 4.  | 37. | 58,1 | 2835 | 9341 | 8554 | 3898 | 72 |
|                        | 10.                                | 17. | 55. | 51,7 | 2864 | 9438 | 8643 | 8939 | 72 |
|                        | 14.                                | 7.  | 13. | 45,5 | 2894 | 9536 | 8732 | 3979 | 73 |
|                        | 17.                                | 20. | 31. | 39,3 | 2923 | 9633 | 8821 | 9020 | 74 |
| December.<br>January.  | 21.                                | 9.  | 49. | 33,0 | 2953 | 9730 | 8910 | 4061 | 75 |
|                        | 24.                                | 23. | 7.  | 26,8 | 2982 | 9828 | 8999 | 9101 | 75 |
|                        | 28.                                | 12. | 25. | 20,5 | 3012 | 9925 | 9088 | 4142 | 76 |
|                        | 1.                                 | 1.  | 43. | 14,2 | 3042 | 0022 | 9177 | 9182 | 77 |



TABLE XVIII. Revolutions of the second Satellite for Months.

| MONTHS.                | Change<br>&c. | E  | F   | G   | H   | I   | K   | L    |
|------------------------|---------------|----|-----|-----|-----|-----|-----|------|
|                        | D.            |    |     |     |     |     |     |      |
| September.             | 2             | 55 | 509 | 505 | 566 | 579 | 616 | 790  |
|                        | 5             | 56 | 516 | 512 | 574 | 587 | 624 | 802  |
|                        | 9             | 57 | 524 | 520 | 582 | 595 | 633 | 813  |
|                        | 12            | 58 | 531 | 527 | 591 | 604 | 642 | 824  |
|                        | 16            | 58 | 538 | 534 | 599 | 612 | 651 | 836  |
|                        | 20            | 59 | 546 | 541 | 607 | 621 | 660 | 847  |
| September.             | 23            | 60 | 553 | 549 | 615 | 629 | 669 | 859  |
|                        | 27            | 61 | 560 | 556 | 623 | 637 | 678 | 870  |
|                        | 30            | 62 | 568 | 563 | 632 | 646 | 687 | 882  |
| October.               | 4             | 62 | 575 | 571 | 640 | 654 | 696 | 893  |
|                        | 7             | 63 | 583 | 579 | 648 | 662 | 705 | 905  |
|                        | 11            | 64 | 590 | 586 | 656 | 671 | 714 | 916  |
|                        | 14            | 65 | 597 | 593 | 664 | 679 | 723 | 927  |
|                        | 18            | 66 | 605 | 600 | 673 | 688 | 732 | 939  |
|                        | 21            | 66 | 612 | 607 | 681 | 696 | 740 | 950  |
| October.<br>November.  | 25            | 67 | 619 | 615 | 689 | 704 | 749 | 962  |
|                        | 29            | 68 | 627 | 622 | 697 | 713 | 758 | 973  |
|                        | 1             | 69 | 634 | 629 | 705 | 721 | 767 | 985  |
|                        | 5             | 70 | 642 | 637 | 714 | 730 | 776 | 996  |
|                        | 8             | 71 | 649 | 644 | 722 | 738 | 785 | 1008 |
|                        | 12            | 71 | 656 | 652 | 730 | 746 | 794 | 1019 |
|                        | 15            | 72 | 664 | 659 | 738 | 755 | 803 | 1031 |
|                        | 19            | 73 | 671 | 666 | 746 | 763 | 812 | 1042 |
|                        | 22            | 74 | 678 | 673 | 755 | 771 | 821 | 1053 |
| November.<br>December. | 26            | 75 | 686 | 681 | 763 | 780 | 830 | 1065 |
|                        | 30            | 75 | 693 | 688 | 771 | 788 | 839 | 1076 |
|                        | 3             | 76 | 701 | 695 | 779 | 797 | 848 | 1088 |
|                        | 7             | 77 | 708 | 703 | 787 | 805 | 856 | 1099 |
|                        | 10            | 78 | 715 | 710 | 796 | 813 | 865 | 1111 |
|                        | 14            | 78 | 723 | 717 | 804 | 822 | 874 | 1122 |
|                        | 17            | 79 | 730 | 725 | 812 | 830 | 883 | 1134 |
| December.<br>January.  | 21            | 80 | 737 | 732 | 820 | 839 | 892 | 1145 |
|                        | 24            | 81 | 745 | 739 | 829 | 847 | 901 | 1156 |
|                        | 28            | 82 | 752 | 747 | 837 | 855 | 910 | 1168 |
|                        | 1             | 82 | 760 | 754 | 845 | 864 | 919 | 1179 |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1660, 0 | 5.     | 51,7 | 4,3   |  | 1668, 0 | 7.     | 0,0  | 6,7   |  | 1676, 0 | 7.     | 6,4  | 3,9   |
| 2       | 5.     | 47,4 | 3,6   |  | 2       | 6.     | 53,3 | 6,9   |  | 2       | 7.     | 10,3 | 3,1   |
| 4       | 5.     | 43,8 | 2,9   |  | 4       | 6.     | 46,4 | 7,0   |  | 4       | 7.     | 13,4 | 2,3   |
| 6       | 5.     | 40,9 | 2,4   |  | 6       | 6.     | 39,4 | 7,1   |  | 6       | 7.     | 15,7 | 2,7   |
| 8       | 5.     | 38,5 | 1,7   |  | 8       | 6.     | 32,3 | 7,0   |  | 8       | 7.     | 18,4 | 1,6   |
| 1661, 0 | 5.     | 36,8 | 0,6   |  | 1669, 0 | 6.     | 25,3 | 6,7   |  | 1677, 0 | 7.     | 20,0 | 0,4   |
| 2       | 5.     | 36,2 | 0,2   |  | 2       | 6.     | 18,6 | 6,4   |  | 2       | 7.     | 20,4 | 0,1   |
| 4       | 5.     | 36,4 | 0,9   |  | 4       | 6.     | 12,2 | 6,1   |  | 4       | 7.     | 20,5 | 0,5   |
| 6       | 5.     | 37,3 | 1,8   |  | 6       | 6.     | 6,1  | 5,8   |  | 6       | 7.     | 20,0 | 1,1   |
| 8       | 5.     | 39,1 | 2,6   |  | 8       | 6.     | 0,3  | 5,3   |  | 8       | 7.     | 18,9 | 1,7   |
| 1662, 0 | 5.     | 41,7 | 3,5   |  | 1670, 0 | 5.     | 55,0 | 4,6   |  | 1678, 0 | 7.     | 17,2 | 2,2   |
| 2       | 5.     | 45,2 | 4,6   |  | 2       | 5.     | 50,4 | 4,0   |  | 2       | 7.     | 15,0 | 2,7   |
| 4       | 5.     | 49,8 | 5,0   |  | 4       | 5.     | 46,4 | 3,6   |  | 4       | 7.     | 12,3 | 3,1   |
| 6       | 5.     | 54,8 | 5,8   |  | 6       | 5.     | 42,8 | 3,0   |  | 6       | 7.     | 9,2  | 3,4   |
| 8       | 6.     | 0,6  | 6,1   |  | 8       | 5.     | 39,8 | 2,4   |  | 8       | 7.     | 5,8  | 3,9   |
| 1663, 0 | 6.     | 6,7  | 6,7   |  | 1671, 0 | 5.     | 37,4 | 1,2   |  | 1679, 0 | 7.     | 1,9  | 4,1   |
| 2       | 6.     | 13,4 | 7,1   |  | 2       | 5.     | 36,2 | 0,7   |  | 2       | 6.     | 57,8 | 4,1   |
| 4       | 6.     | 20,5 | 7,4   |  | 4       | 5.     | 35,5 | 0,2   |  | 4       | 6.     | 53,7 | 4,0   |
| 6       | 6.     | 27,9 | 7,7   |  | 6       | 5.     | 35,3 | 0,8   |  | 6       | 6.     | 49,7 | 3,8   |
| 8       | 6.     | 35,6 | 7,8   |  | 8       | 5.     | 34,5 | 1,5   |  | 8       | 6.     | 45,9 | 3,6   |
| 1664, 0 | 6.     | 43,4 | 7,6   |  | 1672, 0 | 5.     | 36,0 | 1,6   |  | 1680, 0 | 6.     | 42,3 | 3,2   |
| 2       | 6.     | 51,0 | 7,1   |  | 2       | 5.     | 37,6 | 2,2   |  | 2       | 6.     | 39,1 | 3,0   |
| 4       | 6.     | 58,1 | 6,8   |  | 4       | 5.     | 39,8 | 2,9   |  | 4       | 6.     | 36,1 | 2,4   |
| 6       | 7.     | 4,9  | 6,6   |  | 6       | 5.     | 42,7 | 2,8   |  | 6       | 6.     | 33,7 | 2,1   |
| 8       | 7.     | 11,5 | 6,4   |  | 8       | 5.     | 45,5 | 3,3   |  | 8       | 6.     | 31,6 | 1,6   |
| 1665, 0 | 7.     | 17,9 | 5,4   |  | 1673, 0 | 5.     | 48,8 | 4,2   |  | 1681, 0 | 6.     | 30,0 | 1,0   |
| 2       | 7.     | 23,3 | 4,4   |  | 2       | 5.     | 53,0 | 4,4   |  | 2       | 6.     | 29,0 | 0,8   |
| 4       | 7.     | 27,7 | 3,0   |  | 4       | 5.     | 57,4 | 4,6   |  | 4       | 6.     | 28,2 | 0,1   |
| 6       | 7.     | 30,7 | 2,3   |  | 6       | 6.     | 2,0  | 4,9   |  | 6       | 6.     | 28,3 | 0,3   |
| 8       | 7.     | 33,0 | 1,4   |  | 8       | 6.     | 6,9  | 5,4   |  | 8       | 6.     | 28,6 | 0,8   |
| 1666, 0 | 7.     | 34,4 | 0,4   |  | 1674, 0 | 6.     | 12,3 | 5,4   |  | 1682, 0 | 6.     | 29,4 | 1,1   |
| 2       | 7.     | 34,8 | 1,0   |  | 2       | 6.     | 17,7 | 5,8   |  | 2       | 6.     | 30,5 | 1,2   |
| 4       | 7.     | 33,8 | 1,5   |  | 4       | 6.     | 23,5 | 5,9   |  | 4       | 6.     | 31,7 | 1,3   |
| 6       | 7.     | 32,3 | 2,3   |  | 6       | 6.     | 29,4 | 5,9   |  | 6       | 6.     | 33,0 | 1,3   |
| 8       | 7.     | 30,0 | 2,9   |  | 8       | 6.     | 35,3 | 5,6   |  | 8       | 6.     | 34,3 | 1,3   |
| 1667, 0 | 7.     | 27,1 | 4,0   |  | 1675, 0 | 6.     | 40,9 | 5,5   |  | 1683, 0 | 6.     | 35,6 | 1,3   |
| 2       | 7.     | 23,1 | 4,8   |  | 2       | 6.     | 46,4 | 5,3   |  | 2       | 6.     | 36,9 | 1,1   |
| 4       | 7.     | 18,3 | 5,5   |  | 4       | 6.     | 51,7 | 5,2   |  | 4       | 6.     | 38,0 | 0,7   |
| 6       | 7.     | 12,8 | 6,2   |  | 6       | 6.     | 56,9 | 4,9   |  | 6       | 6.     | 38,7 | 0,1   |
| 8       | 7.     | 6,6  | 6,6   |  | 8       | 7.     | 1,8  | 4,6   |  | 8       | 6.     | 38,8 | 0,4   |
| 1668, 0 | 7.     | 0,0  |       |  | 1676, 0 | 7.     | 6,4  |       |  | 1684, 0 | 6.     | 38,4 |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1684, 0 | 6.     | 38,4 | 0,8   |  | 1692, 0 | 6.     | 18,6 | 10,1  |  | 1700, 0 | 5.     | 25,6 | 3,1   |
| 2       | 6.     | 37,6 | 1,1   |  | 2       | 6.     | 28,7 | 10,0  |  | 2       | 5.     | 22,5 | 1,8   |
| 4       | 6.     | 36,5 | 1,4   |  | 4       | 6.     | 38,7 | 9,7   |  | 4       | 5.     | 20,7 | 0,3   |
| 6       | 6.     | 35,1 | 2,0   |  | 6       | 6.     | 48,4 | 9,2   |  | 6       | 5.     | 21,0 | 1,4   |
| 8       | 6.     | 33,1 | 3,1   |  | 8       | 6.     | 57,6 | 8,9   |  | 8       | 5.     | 22,4 | 2,4   |
| 1685, 0 | 6.     | 30,0 | 3,6   |  | 1693, 0 | 7.     | 6,5  | 8,5   |  | 1701, 0 | 5.     | 24,8 | 4,0   |
| 2       | 6.     | 26,4 | 4,2   |  | 2       | 7.     | 15,0 | 8,0   |  | 2       | 5.     | 28,8 | 5,4   |
| 4       | 6.     | 22,2 | 4,7   |  | 4       | 7.     | 23,0 | 7,2   |  | 4       | 5.     | 34,2 | 6,5   |
| 6       | 6.     | 17,5 | 5,2   |  | 6       | 7.     | 30,2 | 6,4   |  | 6       | 5.     | 40,7 | 7,8   |
| 8       | 6.     | 12,3 | 5,5   |  | 8       | 7.     | 36,6 | 5,3   |  | 8       | 5.     | 48,5 | 8,5   |
| 1686, 0 | 6.     | 6,8  | 5,8   |  | 1694, 0 | 7.     | 41,9 | 4,2   |  | 1702, 0 | 5.     | 57,0 | 9,9   |
| 2       | 6.     | 1,0  | 6,2   |  | 2       | 7.     | 46,1 | 3,0   |  | 2       | 6.     | 6,9  | 10,1  |
| 4       | 5.     | 54,8 | 6,5   |  | 4       | 7.     | 49,1 | 1,7   |  | 4       | 6.     | 17,0 | 10,7  |
| 6       | 5.     | 48,3 | 6,7   |  | 6       | 7.     | 50,8 | 1,0   |  | 6       | 6.     | 27,7 | 10,7  |
| 8       | 5.     | 41,6 | 6,5   |  | 8       | 7.     | 51,8 | 0,2   |  | 8       | 6.     | 38,4 | 10,7  |
| 1687, 0 | 5.     | 35,1 | 6,5   |  | 1695, 0 | 7.     | 51,6 | 1,0   |  | 1703, 0 | 6.     | 49,1 | 11,0  |
| 2       | 5.     | 28,6 | 6,5   |  | 2       | 7.     | 50,6 | 2,1   |  | 2       | 7.     | 0,1  | 10,6  |
| 4       | 5.     | 22,1 | 6,1   |  | 4       | 7.     | 48,5 | 2,8   |  | 4       | 7.     | 10,7 | 9,6   |
| 6       | 5.     | 16,0 | 5,6   |  | 6       | 7.     | 45,7 | 3,4   |  | 6       | 7.     | 20,3 | 8,9   |
| 8       | 5.     | 10,4 | 5,3   |  | 8       | 7.     | 42,3 | 4,1   |  | 8       | 7.     | 29,2 | 8,0   |
| 1688, 0 | 5.     | 5,1  | 4,9   |  | 1696, 0 | 7.     | 38,2 | 4,5   |  | 1704, 0 | 7.     | 37,2 | 7,0   |
| 2       | 5.     | 0,2  | 4,1   |  | 2       | 7.     | 33,7 | 5,2   |  | 2       | 7.     | 44,2 | 6,0   |
| 4       | 4.     | 56,1 | 3,2   |  | 4       | 7.     | 28,5 | 5,6   |  | 4       | 7.     | 50,2 | 4,7   |
| 6       | 4.     | 52,9 | 2,6   |  | 6       | 7.     | 22,9 | 6,2   |  | 6       | 7.     | 54,9 | 3,4   |
| 8       | 4.     | 50,3 | 1,7   |  | 8       | 7.     | 16,7 | 7,3   |  | 8       | 7.     | 58,3 | 1,8   |
| 1689, 0 | 4.     | 48,6 | 0,2   |  | 1697, 0 | 7.     | 9,4  | 7,6   |  | 1705, 0 | 8.     | 0,1  | 0,5   |
| 2       | 4.     | 48,4 | 0,5   |  | 2       | 7.     | 1,8  | 7,8   |  | 2       | 8.     | 0,6  | 0,3   |
| 4       | 4.     | 48,9 | 1,5   |  | 4       | 6.     | 54,0 | 7,9   |  | 4       | 8.     | 0,3  | 1,3   |
| 6       | 4.     | 50,4 | 2,3   |  | 6       | 6.     | 46,1 | 8,0   |  | 6       | 7.     | 59,0 | 2,4   |
| 8       | 4.     | 52,7 | 3,4   |  | 8       | 6.     | 38,1 | 8,1   |  | 8       | 7.     | 56,6 | 3,3   |
| 1690, 0 | 4.     | 56,1 | 5,0   |  | 1698, 0 | 6.     | 30,0 | 8,2   |  | 1706, 0 | 7.     | 53,3 | 4,4   |
| 2       | 5.     | 1,1  | 5,9   |  | 2       | 6.     | 21,8 | 8,4   |  | 2       | 7.     | 48,9 | 4,9   |
| 4       | 5.     | 7,0  | 6,7   |  | 4       | 6.     | 13,4 | 8,0   |  | 4       | 7.     | 44,0 | 5,5   |
| 6       | 5.     | 13,7 | 7,5   |  | 6       | 6.     | 5,4  | 7,3   |  | 6       | 7.     | 38,5 | 5,9   |
| 8       | 5.     | 21,2 | 8,2   |  | 8       | 5.     | 58,1 | 6,8   |  | 8       | 7.     | 32,6 | 6,0   |
| 1691, 0 | 5.     | 29,4 | 8,9   |  | 1699, 0 | 5.     | 51,3 | 6,4   |  | 1707, 0 | 7.     | 26,6 | 6,1   |
| 2       | 5.     | 38,3 | 9,5   |  | 2       | 5.     | 44,9 | 5,9   |  | 2       | 7.     | 20,5 | 6,1   |
| 4       | 5.     | 47,8 | 10,0  |  | 4       | 5.     | 39,0 | 5,4   |  | 4       | 7.     | 14,4 | 6,1   |
| 6       | 5.     | 57,8 | 10,3  |  | 6       | 5.     | 33,5 | 4,5   |  | 6       | 7.     | 8,3  | 6,1   |
| 8       | 6.     | 8,1  | 10,5  |  | 8       | 5.     | 29,1 | 3,5   |  | 8       | 7.     | 2,2  | 6,2   |
| 1692, 0 | 6.     | 18,6 |       |  | 1700, 0 | 5.     | 25,6 |       |  | 1708, 0 | 6.     | 56,0 |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1708, 0 | 6.     | 56,0 |       |  | 1716, 0 | 8.     | 46,0 |       |  | 1724, 0 | 7.     | 58,7 |       |
| 2       | 6.     | 49,9 | 6,1   |  | 2       | 8.     | 45,4 | 0,6   |  | 2       | 8.     | 4,8  | 6,1   |
| 4       | 6.     | 44,2 | 5,7   |  | 4       | 8.     | 43,8 | 1,6   |  | 4       | 8.     | 10,6 | 5,8   |
| 6       | 6.     | 38,8 | 5,4   |  | 6       | 8.     | 41,3 | 2,5   |  | 6       | 8.     | 15,7 | 5,1   |
| 8       | 6.     | 33,8 | 5,0   |  | 8       | 8.     | 37,9 | 3,4   |  | 8       | 8.     | 20,3 | 4,6   |
|         |        |      | 4,5   |  |         |        |      | 3,9   |  |         |        |      | 3,9   |
| 1709, 0 | 6.     | 29,3 |       |  | 1717, 0 | 8.     | 34,0 |       |  | 1725, 0 | 8.     | 24,2 |       |
| 2       | 6.     | 25,4 | 3,9   |  | 2       | 8.     | 29,4 | 4,6   |  | 2       | 8.     | 27,7 | 3,5   |
| 4       | 6.     | 21,9 | 3,5   |  | 4       | 8.     | 24,1 | 5,3   |  | 4       | 8.     | 30,2 | 2,5   |
| 6       | 6.     | 18,8 | 3,1   |  | 6       | 8.     | 18,3 | 5,8   |  | 6       | 8.     | 32,0 | 1,8   |
| 8       | 6.     | 16,0 | 2,8   |  | 8       | 8.     | 12,3 | 6,0   |  | 8       | 8.     | 33,0 | 1,0   |
|         |        |      | 2,3   |  |         |        |      | 6,1   |  |         |        |      | 0,2   |
| 1710, 0 | 6.     | 13,7 |       |  | 1718, 0 | 8.     | 6,2  |       |  | 1726, 0 | 8.     | 33,2 |       |
| 2       | 6.     | 12,2 | 1,5   |  | 2       | 7.     | 59,9 | 6,3   |  | 2       | 8.     | 32,8 | 0,4   |
| 4       | 6.     | 11,5 | 0,7   |  | 4       | 7.     | 53,4 | 6,5   |  | 4       | 8.     | 31,2 | 1,6   |
| 6       | 6.     | 11,3 | 0,2   |  | 6       | 7.     | 46,7 | 6,7   |  | 6       | 8.     | 28,8 | 2,4   |
| 8       | 6.     | 11,9 | 0,6   |  | 8       | 7.     | 39,9 | 6,8   |  | 8       | 8.     | 25,9 | 2,9   |
|         |        |      | 1,4   |  |         |        |      | 6,5   |  |         |        |      | 3,2   |
| 1711, 0 | 6.     | 13,3 |       |  | 1719, 0 | 7.     | 33,4 |       |  | 1727, 0 | 8.     | 22,7 |       |
| 2       | 6.     | 15,6 | 2,3   |  | 2       | 7.     | 27,2 | 6,2   |  | 2       | 8.     | 18,9 | 3,8   |
| 4       | 6.     | 18,8 | 3,2   |  | 4       | 7.     | 21,6 | 5,6   |  | 4       | 8.     | 14,6 | 4,3   |
| 6       | 6.     | 22,7 | 3,9   |  | 6       | 7.     | 16,6 | 5,0   |  | 6       | 8.     | 9,8  | 4,8   |
| 8       | 6.     | 27,3 | 4,6   |  | 8       | 7.     | 11,9 | 4,7   |  | 8       | 8.     | 4,8  | 5,0   |
|         |        |      | 5,6   |  |         |        |      | 4,5   |  |         |        |      | 5,2   |
| 1712, 0 | 6.     | 32,9 |       |  | 1720, 0 | 7.     | 7,4  |       |  | 1728, 0 | 7.     | 59,6 |       |
| 2       | 6.     | 39,5 | 6,6   |  | 2       | 7.     | 3,6  | 3,8   |  | 2       | 7.     | 54,3 | 5,3   |
| 4       | 6.     | 46,9 | 7,4   |  | 4       | 7.     | 0,6  | 3,0   |  | 4       | 7.     | 48,7 | 5,6   |
| 6       | 6.     | 54,6 | 7,7   |  | 6       | 6.     | 58,2 | 2,4   |  | 6       | 7.     | 43,4 | 5,3   |
| 8       | 7.     | 2,8  | 8,2   |  | 8       | 6.     | 56,4 | 1,8   |  | 8       | 7.     | 38,5 | 4,9   |
|         |        |      | 8,8   |  |         |        |      | 1,2   |  |         |        |      | 4,7   |
| 1713, 0 | 7.     | 11,6 |       |  | 1721, 0 | 6.     | 55,2 |       |  | 1729, 0 | 7.     | 33,8 |       |
| 2       | 7.     | 20,7 | 9,1   |  | 2       | 6.     | 55,5 | 0,3   |  | 2       | 7.     | 29,0 | 4,8   |
| 4       | 7.     | 30,1 | 9,4   |  | 4       | 6.     | 56,2 | 0,7   |  | 4       | 7.     | 24,6 | 4,4   |
| 6       | 7.     | 39,3 | 9,2   |  | 6       | 6.     | 57,6 | 1,4   |  | 6       | 7.     | 20,6 | 4,0   |
| 8       | 7.     | 48,2 | 8,9   |  | 8       | 6.     | 59,8 | 2,2   |  | 8       | 7.     | 17,1 | 3,5   |
|         |        |      | 8,8   |  |         |        |      | 2,7   |  |         |        |      | 3,2   |
| 1714, 0 | 7.     | 57,0 |       |  | 1722, 0 | 7.     | 2,5  |       |  | 1730, 0 | 7.     | 13,9 |       |
| 2       | 8.     | 5,6  | 8,6   |  | 2       | 7.     | 6,2  | 3,7   |  | 2       | 7.     | 10,8 | 3,1   |
| 4       | 8.     | 13,7 | 8,1   |  | 4       | 7.     | 10,8 | 4,6   |  | 4       | 7.     | 8,1  | 2,7   |
| 6       | 8.     | 21,1 | 7,4   |  | 6       | 7.     | 15,8 | 5,0   |  | 6       | 7.     | 5,8  | 2,3   |
| 8       | 8.     | 27,4 | 6,3   |  | 8       | 7.     | 21,1 | 5,3   |  | 8       | 7.     | 4,0  | 1,8   |
|         |        |      | 5,7   |  |         |        |      | 5,7   |  |         |        |      | 1,3   |
| 1715, 0 | 8.     | 33,1 |       |  | 1723, 0 | 7.     | 26,8 |       |  | 1731, 0 | 7.     | 2,7  |       |
| 2       | 8.     | 37,5 | 4,4   |  | 2       | 7.     | 33,0 | 6,2   |  | 2       | 7.     | 2,2  | 0,5   |
| 4       | 8.     | 41,0 | 3,5   |  | 4       | 7.     | 39,6 | 6,6   |  | 4       | 7.     | 2,2  | 0,0   |
| 6       | 8.     | 43,7 | 2,7   |  | 6       | 7.     | 46,1 | 6,5   |  | 6       | 7.     | 2,3  | 0,1   |
| 8       | 8.     | 45,4 | 1,7   |  | 8       | 7.     | 52,5 | 6,4   |  | 8       | 7.     | 2,8  | 0,5   |
|         |        |      | 0,6   |  |         |        |      | 6,2   |  |         |        |      | 0,7   |
| 1716, 0 | 8.     | 46,0 |       |  | 1724, 0 | 7.     | 58,7 |       |  | 1732, 0 | 7.     | 3,5  |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1732, 0 | 7.     | 3,5  | 1,5   |  | 1740, 0 | 7.     | 42,8 | 0,7   |  | 1748, 0 | 5.     | 38,9 | 4,5   |
| 2       | 7.     | 5,0  | 2,0   |  | 2       | 7.     | 42,1 | 0,4   |  | 2       | 5.     | 34,4 | 3,5   |
| 4       | 7.     | 7,0  | 2,2   |  | 4       | 7.     | 41,7 | 0,0   |  | 4       | 5.     | 30,9 | 2,3   |
| 6       | 7.     | 9,2  | 2,8   |  | 6       | 7.     | 41,7 | 0,5   |  | 6       | 5.     | 28,6 | 1,1   |
| 8       | 7.     | 12,0 | 3,0   |  | 8       | 7.     | 42,2 | 0,8   |  | 8       | 5.     | 27,5 | 0,4   |
| 1733, 0 | 7.     | 15,0 | 3,4   |  | 1741, 0 | 7.     | 43,0 | 1,0   |  | 1749, 0 | 5.     | 27,1 | 1,5   |
| 2       | 7.     | 18,4 | 3,6   |  | 2       | 7.     | 44,0 | 1,3   |  | 2       | 5.     | 28,6 | 2,8   |
| 4       | 7.     | 22,0 | 3,7   |  | 4       | 7.     | 45,3 | 1,5   |  | 4       | 5.     | 31,4 | 3,8   |
| 6       | 7.     | 25,7 | 3,8   |  | 6       | 7.     | 46,8 | 1,6   |  | 6       | 5.     | 35,2 | 5,1   |
| 8       | 7.     | 29,5 | 3,8   |  | 8       | 7.     | 48,4 | 1,6   |  | 8       | 5.     | 40,3 | 6,2   |
| 1734, 0 | 7.     | 33,3 | 3,9   |  | 1742, 0 | 7.     | 50,0 | 1,8   |  | 1750, 0 | 5.     | 46,5 | 7,5   |
| 2       | 7.     | 37,2 | 4,0   |  | 2       | 7.     | 51,8 | 1,8   |  | 2       | 5.     | 54,0 | 8,7   |
| 4       | 7.     | 41,2 | 4,1   |  | 4       | 7.     | 53,6 | 1,6   |  | 4       | 6.     | 2,7  | 9,6   |
| 6       | 7.     | 45,3 | 4,0   |  | 6       | 7.     | 55,2 | 1,1   |  | 6       | 6.     | 12,3 | 10,2  |
| 8       | 7.     | 49,3 | 4,0   |  | 8       | 7.     | 56,3 | 0,6   |  | 8       | 6.     | 22,5 | 11,0  |
| 1735, 0 | 7.     | 53,3 | 3,7   |  | 1743, 0 | 7.     | 56,9 | 0,4   |  | 1751, 0 | 6.     | 33,5 | 11,6  |
| 2       | 7.     | 57,0 | 3,1   |  | 2       | 7.     | 57,3 | 0,6   |  | 2       | 6.     | 45,1 | 12,0  |
| 4       | 8.     | 0,1  | 2,6   |  | 4       | 7.     | 56,7 | 0,9   |  | 4       | 6.     | 57,1 | 11,7  |
| 6       | 8.     | 2,7  | 2,5   |  | 6       | 7.     | 55,8 | 1,3   |  | 6       | 7.     | 8,8  | 11,8  |
| 8       | 8.     | 5,2  | 2,1   |  | 8       | 7.     | 54,5 | 2,0   |  | 8       | 7.     | 20,6 | 11,7  |
| 1736, 0 | 8.     | 7,3  | 1,9   |  | 1744, 0 | 7.     | 52,5 | 2,8   |  | 1752, 0 | 7.     | 32,3 | 11,7  |
| 2       | 8.     | 9,2  | 1,3   |  | 2       | 7.     | 49,7 | 3,7   |  | 2       | 7.     | 44,0 | 10,8  |
| 4       | 8.     | 10,5 | 0,4   |  | 4       | 7.     | 46,0 | 4,2   |  | 4       | 7.     | 54,8 | 10,2  |
| 6       | 8.     | 10,9 | 0,3   |  | 6       | 7.     | 41,8 | 4,8   |  | 6       | 8.     | 5,0  | 9,5   |
| 8       | 8.     | 11,2 | 0,1   |  | 8       | 7.     | 37,0 | 5,4   |  | 8       | 8.     | 14,5 | 8,3   |
| 1737, 0 | 8.     | 11,1 | 0,7   |  | 1745, 0 | 7.     | 31,6 | 6,1   |  | 1753, 0 | 8.     | 22,8 | 7,9   |
| 2       | 8.     | 10,4 | 1,1   |  | 2       | 7.     | 25,5 | 6,7   |  | 2       | 8.     | 30,7 | 6,4   |
| 4       | 8.     | 9,3  | 1,7   |  | 4       | 7.     | 18,8 | 7,2   |  | 4       | 8.     | 37,1 | 5,4   |
| 6       | 8.     | 7,6  | 1,8   |  | 6       | 7.     | 11,6 | 7,9   |  | 6       | 8.     | 42,5 | 4,5   |
| 8       | 8.     | 5,8  | 2,2   |  | 8       | 7.     | 3,7  | 8,5   |  | 8       | 8.     | 47,0 | 3,3   |
| 1738, 0 | 8.     | 3,6  | 2,4   |  | 1746, 0 | 6.     | 55,2 | 8,5   |  | 1754, 0 | 8.     | 50,3 | 2,1   |
| 2       | 8.     | 1,2  | 2,5   |  | 2       | 6.     | 46,7 | 8,7   |  | 2       | 8.     | 52,4 | 1,1   |
| 4       | 7.     | 58,7 | 2,5   |  | 4       | 6.     | 38,0 | 8,6   |  | 4       | 8.     | 53,5 | 0,1   |
| 6       | 7.     | 56,2 | 2,6   |  | 6       | 6.     | 29,4 | 8,2   |  | 6       | 8.     | 53,6 | 1,0   |
| 8       | 7.     | 53,6 | 2,4   |  | 8       | 6.     | 21,2 | 8,0   |  | 8       | 8.     | 52,6 | 1,8   |
| 1739, 0 | 7.     | 51,2 | 2,3   |  | 1747, 0 | 6.     | 13,2 | 7,9   |  | 1755, 0 | 8.     | 50,8 | 2,9   |
| 2       | 7.     | 48,9 | 2,0   |  | 2       | 6.     | 5,3  | 7,7   |  | 2       | 8.     | 47,9 | 3,7   |
| 4       | 7.     | 46,9 | 1,6   |  | 4       | 5.     | 57,6 | 6,8   |  | 4       | 8.     | 44,2 | 4,4   |
| 6       | 7.     | 45,3 | 1,4   |  | 6       | 5.     | 50,8 | 6,3   |  | 6       | 8.     | 39,8 | 5,5   |
| 8       | 7.     | 43,9 | 1,1   |  | 8       | 5.     | 44,5 | 5,6   |  | 8       | 8.     | 34,3 | 5,8   |
| 1740, 0 | 7.     | 42,8 |       |  | 1748, 0 | 5.     | 38,9 |       |  | 1756, 0 | 8.     | 28,5 |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
| M. S.   | SEC.    |       | M. S.   | SEC.    |       | M. S.   | SEC.    |       |
| 1756, 0 | 8. 28,5 | 7,0   | 1764, 0 | 8. 29,0 | 5,4   | 1772, 0 | 7. 10,0 | 7,4   |
| 2       | 8. 21,5 | 7,5   | 2       | 8. 34,4 | 4,1   | 2       | 7. 17,4 | 8,0   |
| 4       | 8. 14,0 | 7,8   | 4       | 8. 38,5 | 2,7   | 4       | 7. 25,4 | 8,5   |
| 6       | 8. 6,2  | 8,4   | 6       | 8. 41,2 | 1,4   | 6       | 7. 33,9 | 8,9   |
| 8       | 7. 57,8 | 8,6   | 8       | 8. 42,6 | 0,4   | 8       | 7. 42,8 | 9,6   |
| 1757, 0 | 7. 49,2 | 9,2   | 1765, 0 | 8. 43,0 | 0,9   | 1773, 0 | 7. 52,4 | 9,7   |
| 2       | 7. 40,0 | 9,5   | 2       | 8. 42,1 | 2,2   | 2       | 8. 2,1  | 9,3   |
| 4       | 7. 30,5 | 9,7   | 4       | 8. 39,9 | 3,1   | 4       | 8. 11,4 | 9,0   |
| 6       | 7. 20,8 | 9,9   | 6       | 8. 36,8 | 3,7   | 6       | 8. 20,4 | 9,1   |
| 8       | 7. 10,9 | 9,9   | 8       | 8. 33,1 | 4,7   | 8       | 8. 29,5 | 8,5   |
| 1758, 0 | 7. 1,0  | 9,7   | 1766, 0 | 8. 28,4 | 4,9   | 1774, 0 | 8. 38,0 | 7,8   |
| 2       | 6. 51,3 | 9,5   | 2       | 8. 23,5 | 5,6   | 2       | 8. 45,8 | 7,0   |
| 4       | 6. 41,8 | 9,3   | 4       | 8. 17,9 | 5,9   | 4       | 8. 52,8 | 6,2   |
| 6       | 6. 32,5 | 8,8   | 6       | 8. 12,0 | 6,4   | 6       | 8. 59,0 | 5,5   |
| 8       | 6. 23,7 | 7,7   | 8       | 8. 5,6  | 6,8   | 8       | 9. 4,5  | 4,7   |
| 1759, 0 | 6. 16,0 | 7,0   | 1767, 0 | 7. 58,8 | 6,5   | 1775, 0 | 9. 9,2  | 2,9   |
| 2       | 6. 9,0  | 6,0   | 2       | 7. 52,3 | 6,6   | 2       | 9. 12,1 | 2,1   |
| 4       | 6. 3,0  | 4,8   | 4       | 7. 45,7 | 6,4   | 4       | 9. 14,2 | 1,2   |
| 6       | 5. 58,2 | 3,8   | 6       | 7. 39,3 | 6,3   | 6       | 9. 15,4 | 0,4   |
| 8       | 5. 54,4 | 2,2   | 8       | 7. 33,0 | 6,2   | 8       | 9. 15,8 | 0,3   |
| 1760, 0 | 5. 52,2 | 1,0   | 1768, 0 | 7. 26,8 | 6,2   | 1776, 0 | 9. 15,5 | 1,2   |
| 2       | 5. 51,2 | 0,6   | 2       | 7. 20,6 | 5,6   | 2       | 9. 14,3 | 2,2   |
| 4       | 5. 51,8 | 2,0   | 4       | 7. 15,0 | 5,3   | 4       | 9. 12,1 | 3,2   |
| 6       | 5. 53,8 | 3,4   | 6       | 7. 9,7  | 4,9   | 6       | 9. 8,9  | 3,9   |
| 8       | 5. 57,2 | 5,0   | 8       | 7. 4,8  | 4,8   | 8       | 9. 5,0  | 4,4   |
| 1761, 0 | 6. 2,2  | 6,8   | 1769, 0 | 7. 0,0  | 4,6   | 1777, 0 | 9. 0,6  | 5,0   |
| 2       | 6. 9,0  | 8,3   | 2       | 6. 55,4 | 4,4   | 2       | 8. 55,6 | 5,5   |
| 4       | 6. 17,3 | 9,2   | 4       | 6. 51,0 | 3,6   | 4       | 8. 50,1 | 5,8   |
| 6       | 6. 26,5 | 10,2  | 6       | 6. 47,4 | 2,8   | 6       | 8. 44,3 | 6,0   |
| 8       | 6. 36,7 | 10,9  | 8       | 6. 44,6 | 1,6   | 8       | 8. 38,3 | 6,2   |
| 1762, 0 | 6. 47,6 | 11,6  | 1770, 0 | 6. 43,0 | 1,0   | 1778, 0 | 8. 32,1 | 6,4   |
| 2       | 6. 59,2 | 11,4  | 2       | 6. 42,0 | 0,4   | 2       | 8. 25,7 | 6,3   |
| 4       | 7. 10,6 | 11,4  | 4       | 6. 41,6 | 0,4   | 4       | 8. 19,4 | 6,4   |
| 6       | 7. 22,0 | 11,4  | 6       | 6. 42,0 | 1,1   | 6       | 8. 13,0 | 6,1   |
| 8       | 7. 33,4 | 11,3  | 8       | 6. 43,1 | 1,8   | 8       | 8. 6,9  | 5,9   |
| 1763, 0 | 7. 44,7 | 10,9  | 1771, 0 | 6. 44,9 | 3,2   | 1779, 0 | 8. 1,0  | 5,4   |
| 2       | 7. 55,6 | 9,7   | 2       | 6. 48,1 | 4,2   | 2       | 7. 55,6 | 5,2   |
| 4       | 8. 5,3  | 9,0   | 4       | 6. 52,3 | 4,9   | 4       | 7. 50,4 | 4,9   |
| 6       | 8. 14,3 | 7,8   | 6       | 6. 57,2 | 5,9   | 6       | 7. 45,5 | 4,7   |
| 8       | 8. 22,1 | 6,9   | 8       | 7. 3,1  | 6,9   | 8       | 7. 40,8 | 3,7   |
| 1764, 0 | 8. 29,0 |       | 1772, 0 | 7. 10,0 |       | 1780, 0 | 7. 37,1 |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. | YEARS.  | Equat.  | Diff. |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|
| M. S.   | SEC.    |       | M. S.   | SEC.    |       | M. S.   | SEC.    |       |
| 1780, 0 | 7. 37,1 | 3,2   | 1788, 0 | 8. 20,9 | 4,0   | 1796, 0 | 8. 18,6 | 0,1   |
| 2       | 7. 33,9 | 2,5   | 2       | 8. 16,9 | 4,0   | 2       | 8. 18,7 | 0,3   |
| 4       | 7. 31,4 | 1,8   | 4       | 8. 12,9 | 3,9   | 4       | 8. 18,4 | 0,5   |
| 6       | 7. 29,6 | 1,3   | 6       | 8. 9,0  | 3,8   | 6       | 8. 17,9 | 0,7   |
| 8       | 7. 28,3 | 0,5   | 8       | 8. 5,2  | 3,4   | 8       | 8. 17,2 | 1,3   |
| 1781, 0 | 7. 27,8 | 0,7   | 1789, 0 | 8. 1,8  | 3,0   | 1797, 0 | 8. 15,9 | 1,5   |
| 2       | 7. 28,5 | 1,3   | 2       | 7. 58,8 | 3,1   | 2       | 8. 14,4 | 1,8   |
| 4       | 7. 29,8 | 2,0   | 4       | 7. 55,7 | 2,5   | 4       | 8. 12,6 | 1,7   |
| 6       | 7. 31,8 | 2,5   | 6       | 7. 53,2 | 2,1   | 6       | 8. 10,9 | 1,5   |
| 8       | 7. 34,3 | 2,8   | 8       | 7. 51,1 | 2,4   | 8       | 8. 9,4  | 1,6   |
| 1782, 0 | 7. 37,1 | 3,8   | 1790, 0 | 7. 48,7 | 2,2   | 1798, 0 | 8. 7,8  | 1,3   |
| 2       | 7. 40,9 | 4,1   | 2       | 7. 46,5 | 2,0   | 2       | 8. 6,5  | 1,4   |
| 4       | 7. 45,0 | 4,8   | 4       | 7. 44,5 | 1,6   | 4       | 8. 5,1  | 1,1   |
| 6       | 7. 49,8 | 5,0   | 6       | 7. 42,9 | 1,2   | 6       | 8. 4,0  | 0,7   |
| 8       | 7. 54,8 | 5,2   | 8       | 7. 41,7 | 0,6   | 8       | 8. 3,3  | 0,6   |
| 1783, 0 | 8. 0,0  | 5,6   | 1791, 0 | 7. 41,1 | 0,6   | 1799, 0 | 8. 2,7  | 0,8   |
| 2       | 8. 5,6  | 5,4   | 2       | 7. 40,5 | 0,3   | 2       | 8. 1,9  | 0,1   |
| 4       | 8. 11,0 | 5,4   | 4       | 7. 40,2 | 0,3   | 4       | 8. 1,8  | 0,4   |
| 6       | 8. 16,4 | 5,5   | 6       | 7. 40,5 | 0,6   | 6       | 8. 2,2  | 0,8   |
| 8       | 8. 21,9 | 5,2   | 8       | 7. 41,1 | 0,8   | 8       | 8. 3,0  | 1,0   |
| 1784, 0 | 8. 27,1 | 4,6   | 1792, 0 | 7. 41,9 | 1,4   | 1800, 0 | 8. 4,0  | 1,2   |
| 2       | 8. 31,7 | 4,2   | 2       | 7. 43,3 | 1,3   | 2       | 8. 5,2  | 1,5   |
| 4       | 8. 35,9 | 3,7   | 4       | 7. 44,6 | 1,6   | 4       | 8. 6,7  | 1,6   |
| 6       | 8. 39,6 | 3,2   | 6       | 7. 46,2 | 1,8   | 6       | 8. 8,3  | 1,9   |
| 8       | 8. 42,8 | 2,9   | 8       | 7. 48,0 | 2,4   | 8       | 8. 10,2 | 2,3   |
| 1785, 0 | 8. 45,7 | 1,8   | 1793, 0 | 7. 50,4 | 2,4   | 1801, 0 | 8. 12,5 | 2,5   |
| 2       | 8. 47,5 | 1,1   | 2       | 7. 52,8 | 2,3   | 2       | 8. 15,0 | 2,5   |
| 4       | 8. 48,6 | 0,7   | 4       | 7. 55,1 | 2,3   | 4       | 8. 17,5 | 2,1   |
| 6       | 8. 49,3 | 0,4   | 6       | 7. 57,4 | 2,4   | 6       | 8. 19,6 | 2,2   |
| 8       | 8. 49,7 | 0,3   | 8       | 7. 59,8 | 2,4   | 8       | 8. 21,8 | 1,9   |
| 1786, 0 | 8. 49,4 | 1,4   | 1794, 0 | 8. 2,2  | 2,8   | 1802, 0 | 8. 23,7 | 1,2   |
| 2       | 8. 48,0 | 1,9   | 2       | 8. 5,0  | 2,8   | 2       | 8. 24,9 | 1,0   |
| 4       | 8. 46,1 | 2,0   | 4       | 8. 7,8  | 2,6   | 4       | 8. 25,9 | 0,4   |
| 6       | 8. 44,1 | 2,4   | 6       | 8. 10,4 | 2,1   | 6       | 8. 26,3 | 0,1   |
| 8       | 8. 41,7 | 2,8   | 8       | 8. 12,5 | 1,4   | 8       | 8. 26,2 | 0,5   |
| 1787, 0 | 8. 38,9 | 3,5   | 1795, 0 | 8. 13,9 | 1,5   | 1803, 0 | 8. 25,7 | 1,0   |
| 2       | 8. 35,4 | 3,8   | 2       | 8. 15,4 | 1,4   | 2       | 8. 24,7 | 1,9   |
| 4       | 8. 31,6 | 3,6   | 4       | 8. 16,8 | 0,9   | 4       | 8. 22,8 | 2,7   |
| 6       | 8. 28,0 | 3,5   | 6       | 8. 17,7 | 0,7   | 6       | 8. 20,1 | 3,6   |
| 8       | 8. 24,5 | 3,6   | 8       | 8. 18,4 | 0,2   | 8       | 8. 16,5 | 4,4   |
| 1788, 0 | 8. 20,5 |       | 1796, 0 | 8. 18,6 |       | 1804, 0 | 8. 12,1 |       |



TABLE XIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|---------|--------|------|-------|
|         | M.     | S.   | SEC.  |         | M.     | S.   | SEC.  |
| 1804, 0 | 8.     | 12,1 | 4,8   | 1812, 0 | 8.     | 0,7  | 11,5  |
| 2       | 8.     | 7,3  | 5,6   | 2       | 8.     | 12,2 | 10,1  |
| 4       | 8.     | 1,7  | 7,4   | 4       | 8.     | 22,3 | 9,4   |
| 6       | 7.     | 54,3 | 7,5   | 6       | 8.     | 31,7 | 8,6   |
| 8       | 7.     | 46,8 | 8,1   | 8       | 8.     | 40,3 | 7,4   |
| 1805, 0 | 7.     | 38,7 | 8,7   | 1813, 0 | 8.     | 47,7 | 5,6   |
| 2       | 7.     | 30,0 | 9,4   | 2       | 8.     | 53,3 | 4,6   |
| 4       | 7.     | 20,6 | 9,6   | 4       | 8.     | 57,9 | 3,3   |
| 6       | 7.     | 11,0 | 10,3  | 6       | 9.     | 1,2  | 2,4   |
| 8       | 7.     | 0,7  | 10,5  | 8       | 9.     | 3,6  | 1,4   |
| 1806, 0 | 6.     | 50,2 | 10,0  | 1814, 0 | 9.     | 5,0  | 0,5   |
| 2       | 6.     | 40,2 | 10,0  | 2       | 9.     | 5,5  | 0,3   |
| 4       | 6.     | 30,2 | 9,6   | 4       | 9.     | 5,2  | 1,8   |
| 6       | 6.     | 20,6 | 9,2   | 6       | 9.     | 3,4  | 3,4   |
| 8       | 6.     | 11,4 | 9,6   | 8       | 9.     | 0,0  | 4,0   |
| 1807, 0 | 6.     | 1,8  | 8,4   | 1815, 0 | 8.     | 56,0 | 5,0   |
| 2       | 5.     | 53,4 | 7,9   | 2       | 8.     | 51,0 | 5,8   |
| 4       | 5.     | 45,5 | 6,5   | 4       | 8.     | 45,2 | 6,1   |
| 6       | 5.     | 39,0 | 5,7   | 6       | 8.     | 39,1 | 6,9   |
| 8       | 5.     | 33,3 | 4,9   | 8       | 8.     | 32,2 | 7,7   |
| 1808, 0 | 5.     | 28,4 | 2,6   | 1816, 0 | 8.     | 24,5 | 8,6   |
| 2       | 5.     | 25,8 | 1,6   | 2       | 8.     | 15,9 | 9,2   |
| 4       | 5.     | 24,2 | 0,2   | 4       | 8.     | 6,7  | 10,2  |
| 6       | 5.     | 24,0 | 1,2   | 6       | 7.     | 56,5 | 10,6  |
| 8       | 5.     | 25,2 | 2,6   | 8       | 7.     | 45,9 | 11,1  |
| 1809, 0 | 5.     | 27,8 | 3,8   | 1817, 0 | 7.     | 34,8 | 11,2  |
| 2       | 5.     | 31,6 | 5,3   | 2       | 7.     | 23,6 | 11,1  |
| 4       | 5.     | 36,9 | 6,2   | 4       | 7.     | 12,5 | 11,1  |
| 6       | 5.     | 43,1 | 8,2   | 6       | 7.     | 1,4  | 11,4  |
| 8       | 5.     | 51,3 | 8,9   | 8       | 6.     | 50,0 | 11,1  |
| 1810, 0 | 6.     | 0,2  | 10,1  | 1818, 0 | 6.     | 38,9 | 10,4  |
| 2       | 6.     | 10,3 | 11,2  | 2       | 6.     | 28,5 | 9,9   |
| 4       | 6.     | 21,5 | 11,7  | 4       | 6.     | 18,6 | 9,2   |
| 6       | 6.     | 33,2 | 12,2  | 6       | 6.     | 9,4  | 8,7   |
| 8       | 6.     | 45,4 | 12,7  | 8       | 6.     | 0,7  | 6,9   |
| 1811, 0 | 6.     | 58,1 | 12,9  | 1819, 0 | 5.     | 53,8 | 6,4   |
| 2       | 7.     | 11,0 | 13,1  | 2       | 5.     | 47,4 | 5,6   |
| 4       | 7.     | 24,1 | 12,3  | 4       | 5.     | 41,8 | 3,3   |
| 6       | 7.     | 36,4 | 12,3  | 6       | 5.     | 38,5 | 1,1   |
| 8       | 7.     | 48,7 | 12,0  | 8       | 5.     | 37,4 | 0,2   |
| 1812, 0 | 8.     | 0,7  |       | 1820, 0 | 5.     | 37,2 |       |



TABLE XX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |          | Diff. | Arg. A. | Equation A. |          | Diff. | Arg. A. | Equation A. |          | Diff. |
|---------|-------------|----------|-------|---------|-------------|----------|-------|---------|-------------|----------|-------|
|         | H.          | M. S.    |       |         | H.          | M. S.    |       |         | H.          | M. S.    |       |
| 0       | I.          | 54. 44,8 |       | 4000    | I.          | 6. 8,1   | 62,9  | 8000    | O.          | 36. 47,7 | 20,1  |
| 100     | I.          | 53. 27,3 | 77,5  | 4100    | I.          | 5. 5,2   | 62,1  | 8100    | O.          | 36. 27,6 | 18,7  |
| 200     | I.          | 52. 9,8  | 77,5  | 4200    | I.          | 4. 3,1   | 61,2  | 8200    | O.          | 36. 8,9  | 17,5  |
| 300     | I.          | 50. 52,3 | 77,5  | 4300    | I.          | 3. 1,9   | 60,7  | 8300    | O.          | 35. 51,4 | 16,0  |
| 400     | I.          | 49. 34,8 | 77,4  | 4400    | I.          | 2. 1,2   | 59,7  | 8400    | O.          | 35. 35,4 | 14,8  |
| 500     | I.          | 48. 17,4 | 77,3  | 4500    | I.          | 1. 1,5   | 58,9  | 8500    | O.          | 35. 20,6 | 13,5  |
| 600     | I.          | 47. 0,1  | 77,4  | 4600    | I.          | 0. 2,6   | 58,0  | 8600    | O.          | 35. 7,1  | 11,9  |
| 700     | I.          | 45. 42,7 | 77,1  | 4700    | O.          | 59. 4,6  | 57,3  | 8700    | O.          | 34. 55,2 | 10,4  |
| 800     | I.          | 44. 25,6 | 77,1  | 4800    | O.          | 58. 7,3  | 56,3  | 8800    | O.          | 34. 44,8 | 9,3   |
| 900     | I.          | 43. 8,5  | 76,9  | 4900    | O.          | 57. 11,0 | 55,3  | 8900    | O.          | 34. 35,5 | 7,9   |
| 1000    | I.          | 41. 51,6 | 76,7  | 5000    | O.          | 56. 15,7 | 54,4  | 9000    | O.          | 34. 27,6 | 6,3   |
| 1100    | I.          | 40. 34,9 | 76,6  | 5100    | O.          | 55. 21,3 | 53,6  | 9100    | O.          | 34. 21,3 | 4,9   |
| 1200    | I.          | 39. 18,3 | 76,5  | 5200    | O.          | 54. 27,7 | 52,7  | 9200    | O.          | 34. 16,4 | 3,6   |
| 1300    | I.          | 38. 1,8  | 76,1  | 5300    | O.          | 53. 35,0 | 51,8  | 9300    | O.          | 34. 12,8 | 2,1   |
| 1400    | I.          | 36. 45,7 | 75,8  | 5400    | O.          | 52. 43,2 | 50,7  | 9400    | O.          | 34. 10,7 | 0,6   |
| 1500    | I.          | 35. 29,9 | 75,7  | 5500    | O.          | 51. 52,5 | 49,5  | 9500    | O.          | 34. 10,1 | 0,9   |
| 1600    | I.          | 34. 14,2 | 75,4  | 5600    | O.          | 51. 3,0  | 48,6  | 9600    | O.          | 34. 11,0 | 2,3   |
| 1700    | I.          | 32. 58,8 | 75,0  | 5700    | O.          | 50. 14,4 | 47,6  | 9700    | O.          | 34. 13,3 | 3,5   |
| 1800    | I.          | 31. 43,8 | 74,7  | 5800    | O.          | 49. 26,8 | 46,7  | 9800    | O.          | 34. 16,8 | 5,2   |
| 1900    | I.          | 30. 29,1 | 74,4  | 5900    | O.          | 48. 40,1 | 45,5  | 9900    | O.          | 34. 22,0 | 6,8   |
| 2000    | I.          | 29. 14,7 | 73,9  | 6000    | O.          | 47. 54,6 | 44,4  | 10000   | O.          | 34. 28,8 | 8,0   |
| 2100    | I.          | 28. 0,8  | 73,7  | 6100    | O.          | 47. 10,2 | 43,4  | 10100   | O.          | 34. 36,8 | 9,5   |
| 2200    | I.          | 26. 47,1 | 73,3  | 6200    | O.          | 46. 26,8 | 42,4  | 10200   | O.          | 34. 46,3 | 10,9  |
| 2300    | I.          | 25. 33,8 | 72,7  | 6300    | O.          | 45. 44,4 | 41,4  | 10300   | O.          | 34. 57,2 | 12,5  |
| 2400    | I.          | 24. 21,1 | 72,4  | 6400    | O.          | 45. 3,0  | 39,9  | 10400   | O.          | 35. 9,7  | 14,0  |
| 2500    | I.          | 23. 8,7  | 72,0  | 6500    | O.          | 44. 23,1 | 38,9  | 10500   | O.          | 35. 23,7 | 15,4  |
| 2600    | I.          | 21. 56,7 | 71,6  | 6600    | O.          | 43. 44,2 | 37,6  | 10600   | O.          | 35. 39,1 | 16,8  |
| 2700    | I.          | 20. 45,1 | 71,2  | 6700    | O.          | 43. 6,6  | 36,5  | 10700   | O.          | 35. 55,9 | 18,4  |
| 2800    | I.          | 19. 33,9 | 70,4  | 6800    | O.          | 42. 30,1 | 35,4  | 10800   | O.          | 36. 14,3 | 19,7  |
| 2900    | I.          | 18. 23,5 | 69,8  | 6900    | O.          | 41. 54,7 | 34,3  | 10900   | O.          | 36. 34,0 | 21,3  |
| 3000    | I.          | 17. 13,7 | 69,3  | 7000    | O.          | 41. 20,4 | 32,9  | 11000   | O.          | 36. 55,3 | 22,7  |
| 3100    | I.          | 16. 4,4  | 68,8  | 7100    | O.          | 40. 47,5 | 31,8  | 11100   | O.          | 37. 18,0 | 24,2  |
| 3200    | I.          | 14. 55,6 | 68,2  | 7200    | O.          | 40. 15,7 | 30,5  | 11200   | O.          | 37. 42,2 | 25,5  |
| 3300    | I.          | 13. 47,4 | 67,8  | 7300    | O.          | 39. 45,2 | 29,1  | 11300   | O.          | 38. 7,7  | 27,2  |
| 3400    | I.          | 12. 39,6 | 67,1  | 7400    | O.          | 39. 16,1 | 28,0  | 11400   | O.          | 38. 34,9 | 28,4  |
| 3500    | I.          | 11. 32,5 | 66,1  | 7500    | O.          | 38. 48,1 | 26,7  | 11500   | O.          | 39. 3,3  | 30,0  |
| 3600    | I.          | 10. 26,4 | 65,6  | 7600    | O.          | 38. 21,4 | 25,4  | 11600   | O.          | 39. 33,3 | 31,4  |
| 3700    | I.          | 9. 20,8  | 65,2  | 7700    | O.          | 37. 56,0 | 24,2  | 11700   | O.          | 40. 4,7  | 32,9  |
| 3800    | I.          | 8. 15,6  | 64,1  | 7800    | O.          | 37. 31,8 | 22,6  | 11800   | O.          | 40. 37,6 | 34,0  |
| 3900    | I.          | 7. 11,5  | 63,4  | 7900    | O.          | 37. 9,2  | 21,5  | 11900   | O.          | 41. 11,6 | 35,7  |
| 4000    | I.          | 6. 8,1   |       | 8000    | O.          | 36. 47,7 |       | 12000   | O.          | 41. 47,3 |       |



TABLE XX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. |
|---------|-------------|-------|---------|-------------|-------|---------|-------------|-------|
|         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |
| 12000   | O. 41. 47,3 |       | 16000   | I. 22. 22,1 |       | 20000   | 2. 19. 14,6 |       |
| 12100   | O. 42. 24,3 | 37,0  | 16100   | I. 23. 42,8 | 80,7  | 20100   | 2. 20. 36,2 | 81,6  |
| 12200   | O. 43. 2,7  | 38,4  | 16200   | I. 25. 4,1  | 81,3  | 20200   | 2. 21. 57,3 | 81,1  |
| 12300   | O. 43. 42,6 | 39,9  | 16300   | I. 26. 26,0 | 81,9  | 20300   | 2. 23. 17,7 | 80,4  |
| 12400   | O. 44. 23,8 | 41,2  | 16400   | I. 27. 48,5 | 82,5  | 20400   | 2. 24. 37,5 | 79,8  |
|         |             | 42,7  |         |             | 83,0  |         |             | 79,1  |
| 12500   | O. 45. 6,5  | 43,9  | 16500   | I. 29. 11,5 | 83,5  | 20500   | 2. 25. 56,6 | 78,3  |
| 12600   | O. 45. 50,4 | 45,3  | 16600   | I. 30. 35,0 | 84,0  | 20600   | 2. 27. 14,9 | 77,5  |
| 12700   | O. 46. 35,7 | 46,6  | 16700   | I. 31. 59,0 | 84,4  | 20700   | 2. 28. 32,4 | 76,7  |
| 12800   | O. 47. 22,3 | 48,0  | 16800   | I. 33. 23,4 | 84,9  | 20800   | 2. 29. 49,1 | 75,9  |
| 12900   | O. 48. 10,3 | 49,2  | 16900   | I. 34. 48,3 | 85,2  | 20900   | 2. 31. 5,0  | 75,4  |
| 13000   | O. 48. 59,5 | 50,7  | 17000   | I. 36. 13,5 | 85,6  | 21000   | 2. 32. 20,4 | 74,3  |
| 13100   | O. 49. 50,2 | 51,7  | 17100   | I. 37. 39,1 | 85,9  | 21100   | 2. 33. 34,7 | 73,4  |
| 13200   | O. 50. 41,9 | 52,9  | 17200   | I. 39. 5,0  | 86,2  | 21200   | 2. 34. 48,1 | 72,7  |
| 13300   | O. 51. 34,8 | 54,6  | 17300   | I. 40. 31,2 | 86,5  | 21300   | 2. 36. 0,8  | 71,5  |
| 13400   | O. 52. 29,4 | 55,7  | 17400   | I. 41. 57,7 | 86,8  | 21400   | 2. 37. 12,3 | 70,8  |
| 13500   | O. 53. 25,1 | 56,8  | 17500   | I. 43. 24,5 | 86,8  | 21500   | 2. 38. 23,1 | 69,6  |
| 13600   | O. 54. 21,9 | 57,9  | 17600   | I. 44. 51,3 | 87,1  | 21600   | 2. 39. 32,7 | 68,7  |
| 13700   | O. 55. 19,8 | 59,4  | 17700   | I. 46. 18,4 | 87,2  | 21700   | 2. 40. 41,4 | 67,8  |
| 13800   | O. 56. 19,2 | 60,4  | 17800   | I. 47. 45,6 | 87,3  | 21800   | 2. 41. 49,2 | 66,9  |
| 13900   | O. 57. 19,6 | 61,7  | 17900   | I. 49. 12,9 | 87,4  | 21900   | 2. 42. 56,1 | 65,5  |
| 14000   | O. 58. 21,3 | 62,7  | 18000   | I. 50. 40,3 | 87,5  | 22000   | 2. 44. 1,6  | 64,5  |
| 14100   | O. 59. 24,0 | 63,6  | 18100   | I. 52. 7,8  | 87,5  | 22100   | 2. 45. 6,1  | 63,3  |
| 14200   | I. 0. 27,6  | 65,0  | 18200   | I. 53. 35,3 | 87,4  | 22200   | 2. 46. 9,4  | 62,4  |
| 14300   | I. 1. 32,6  | 65,9  | 18300   | I. 55. 2,7  | 87,4  | 22300   | 2. 47. 11,8 | 61,3  |
| 14400   | I. 2. 38,5  | 67,1  | 18400   | I. 56. 30,1 | 87,3  | 22400   | 2. 48. 13,1 | 60,1  |
| 14500   | I. 3. 45,6  | 68,2  | 18500   | I. 57. 57,4 | 87,2  | 22500   | 2. 49. 13,2 | 58,8  |
| 14600   | I. 4. 53,8  | 69,1  | 18600   | I. 59. 24,6 | 86,9  | 22600   | 2. 50. 12,0 | 57,8  |
| 14700   | I. 6. 2,9   | 70,1  | 18700   | 2. 0. 51,5  | 86,7  | 22700   | 2. 51. 9,8  | 56,3  |
| 14800   | I. 7. 13,0  | 71,0  | 18800   | 2. 2. 18,2  | 86,7  | 22800   | 2. 52. 6,1  | 55,2  |
| 14900   | I. 8. 24,0  | 71,9  | 18900   | 2. 3. 44,9  | 86,5  | 22900   | 2. 53. 1,3  | 54,1  |
| 15000   | I. 9. 35,9  | 72,8  | 19000   | 2. 5. 11,4  | 86,0  | 23000   | 2. 53. 55,4 | 52,6  |
| 15100   | I. 10. 48,7 | 73,8  | 19100   | 2. 6. 37,4  | 85,8  | 23100   | 2. 54. 48,0 | 51,6  |
| 15200   | I. 12. 2,5  | 74,8  | 19200   | 2. 8. 3,2   | 85,5  | 23200   | 2. 55. 39,6 | 50,2  |
| 15300   | I. 13. 17,3 | 75,5  | 19300   | 2. 9. 28,7  | 85,2  | 23300   | 2. 56. 29,8 | 49,1  |
| 15400   | I. 14. 32,8 | 76,5  | 19400   | 2. 10. 53,9 | 84,5  | 23400   | 2. 57. 18,9 | 47,5  |
| 15500   | I. 15. 49,3 | 77,1  | 19500   | 2. 12. 18,4 | 84,3  | 23500   | 2. 58. 6,4  | 46,3  |
| 15600   | I. 17. 6,4  | 77,8  | 19600   | 2. 13. 42,7 | 83,8  | 23600   | 2. 58. 52,7 | 44,8  |
| 15700   | I. 18. 24,2 | 78,5  | 19700   | 2. 15. 6,5  | 83,2  | 23700   | 2. 59. 37,5 | 43,7  |
| 15800   | I. 19. 42,7 | 79,3  | 19800   | 2. 16. 29,7 | 82,8  | 23800   | 3. 0. 21,2  | 42,4  |
| 15900   | I. 21. 2,0  | 80,1  | 19900   | 2. 17. 52,5 | 82,1  | 23900   | 3. 1. 3,6   | 40,8  |
| 16000   | I. 22. 22,1 |       | 20000   | 2. 19. 14,6 |       | 24000   | 3. 1. 44,4  |       |



TABLE XX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. |
|---------|-------------|-------|---------|-------------|-------|---------|-------------|-------|
|         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |
| 24000   | 3. 1. 44,4  | 39,5  | 28000   | 3. 9. 30,8  | 17,5  | 32000   | 2. 42. 29,0 | 61,2  |
| 24100   | 3. 2. 23,9  | 38,4  | 28100   | 3. 9. 13,3  | 18,7  | 32100   | 2. 41. 27,8 | 61,8  |
| 24200   | 3. 3. 2,3   | 36,7  | 28200   | 3. 8. 54,6  | 20,1  | 32200   | 2. 40. 26,0 | 62,5  |
| 24300   | 3. 3. 39,0  | 35,0  | 28300   | 3. 8. 34,5  | 21,2  | 32300   | 2. 39. 23,5 | 63,3  |
| 24400   | 3. 4. 14,0  | 34,0  | 28400   | 3. 8. 13,3  | 22,7  | 32400   | 2. 38. 20,2 | 64,0  |
| 24500   | 3. 4. 48,0  | 32,6  | 28500   | 3. 7. 50,6  | 24,0  | 32500   | 2. 37. 16,2 | 64,8  |
| 24600   | 3. 5. 20,6  | 31,1  | 28600   | 3. 7. 26,6  | 25,3  | 32600   | 2. 36. 11,4 | 65,4  |
| 24700   | 3. 5. 51,7  | 29,6  | 28700   | 3. 7. 1,3   | 26,5  | 32700   | 2. 35. 6,0  | 66,2  |
| 24800   | 3. 6. 21,3  | 28,3  | 28800   | 3. 6. 34,8  | 27,8  | 32800   | 2. 33. 59,8 | 66,7  |
| 24900   | 3. 6. 49,6  | 27,0  | 28900   | 3. 6. 7,0   | 29,0  | 32900   | 2. 32. 53,1 | 67,4  |
| 25000   | 3. 7. 16,6  | 25,3  | 29000   | 3. 5. 38,0  | 30,2  | 33000   | 2. 31. 45,7 | 68,0  |
| 25100   | 3. 7. 41,9  | 23,9  | 29100   | 3. 5. 7,8   | 31,6  | 33100   | 2. 30. 37,7 | 68,6  |
| 25200   | 3. 8. 5,8   | 22,6  | 29200   | 3. 4. 36,2  | 32,8  | 33200   | 2. 29. 29,1 | 69,1  |
| 25300   | 3. 8. 28,4  | 21,0  | 29300   | 3. 4. 3,4   | 33,9  | 33300   | 2. 28. 20,0 | 69,7  |
| 25400   | 3. 8. 49,4  | 19,6  | 29400   | 3. 3. 29,5  | 35,2  | 33400   | 2. 27. 10,3 | 70,1  |
| 25500   | 3. 9. 9,0   | 18,0  | 29500   | 3. 2. 54,3  | 36,3  | 33500   | 2. 26. 0,2  | 70,8  |
| 25600   | 3. 9. 27,0  | 16,7  | 29600   | 3. 2. 18,0  | 37,5  | 33600   | 2. 24. 49,4 | 71,3  |
| 25700   | 3. 9. 43,7  | 15,3  | 29700   | 3. 1. 40,5  | 38,7  | 33700   | 2. 23. 38,1 | 71,8  |
| 25800   | 3. 9. 59,0  | 13,8  | 29800   | 3. 1. 1,8   | 39,7  | 33800   | 2. 22. 26,3 | 72,3  |
| 25900   | 3. 10. 12,8 | 12,3  | 29900   | 3. 0. 22,1  | 41,0  | 33900   | 2. 21. 14,0 | 72,6  |
| 26000   | 3. 10. 25,1 | 10,8  | 30000   | 2. 59. 41,1 | 41,9  | 34000   | 2. 20. 1,4  | 73,1  |
| 26100   | 3. 10. 35,9 | 9,4   | 30100   | 2. 58. 59,2 | 43,1  | 34100   | 2. 18. 48,3 | 73,4  |
| 26200   | 3. 10. 45,3 | 8,1   | 30200   | 2. 58. 16,1 | 44,3  | 34200   | 2. 17. 34,9 | 74,0  |
| 26300   | 3. 10. 53,4 | 6,5   | 30300   | 2. 57. 31,8 | 45,6  | 34300   | 2. 16. 20,9 | 74,3  |
| 26400   | 3. 10. 59,9 | 5,1   | 30400   | 2. 56. 46,2 | 46,2  | 34400   | 2. 15. 6,6  | 74,6  |
| 26500   | 3. 11. 5,0  | 3,6   | 30500   | 2. 56. 0,0  | 47,3  | 34500   | 2. 13. 52,0 | 74,8  |
| 26600   | 3. 11. 8,6  | 2,1   | 30600   | 2. 55. 12,7 | 48,4  | 34600   | 2. 12. 37,2 | 75,3  |
| 26700   | 3. 11. 10,7 | 0,8   | 30700   | 2. 54. 24,3 | 49,4  | 34700   | 2. 11. 21,9 | 75,5  |
| 26800   | 3. 11. 11,5 | 0,6   | 30800   | 2. 53. 34,9 | 50,4  | 34800   | 2. 10. 6,4  | 75,8  |
| 26900   | 3. 11. 10,9 | 2,1   | 30900   | 2. 52. 44,5 | 51,5  | 34900   | 2. 8. 50,6  | 76,0  |
| 27000   | 3. 11. 8,8  | 3,5   | 31000   | 2. 51. 53,0 | 52,4  | 35000   | 2. 7. 34,6  | 76,2  |
| 27100   | 3. 11. 5,3  | 4,8   | 31100   | 2. 51. 0,6  | 53,3  | 35100   | 2. 6. 18,4  | 76,5  |
| 27200   | 3. 11. 0,5  | 6,4   | 31200   | 2. 50. 7,3  | 54,2  | 35200   | 2. 5. 1,9   | 76,8  |
| 27300   | 3. 10. 54,1 | 7,7   | 31300   | 2. 49. 13,1 | 55,1  | 35300   | 2. 3. 45,1  | 76,9  |
| 27400   | 3. 10. 46,4 | 9,3   | 31400   | 2. 48. 18,0 | 56,0  | 35400   | 2. 2. 28,2  | 76,9  |
| 27500   | 3. 10. 37,1 | 10,4  | 31500   | 2. 47. 22,0 | 56,9  | 35500   | 2. 1. 11,3  | 77,0  |
| 27600   | 3. 10. 26,7 | 11,9  | 31600   | 2. 46. 25,1 | 57,6  | 35600   | 1. 59. 54,3 | 77,3  |
| 27700   | 3. 10. 14,8 | 13,2  | 31700   | 2. 45. 27,5 | 58,8  | 35700   | 1. 58. 37,0 | 77,4  |
| 27800   | 3. 10. 1,6  | 14,9  | 31800   | 2. 44. 28,7 | 59,4  | 35800   | 1. 57. 19,6 | 77,4  |
| 27900   | 3. 9. 46,7  | 15,9  | 31900   | 2. 43. 29,3 | 60,3  | 35900   | 1. 56. 2,2  | 77,4  |
| 28000   | 3. 9. 3,8   |       | 32000   | 2. 42. 29,0 |       | 36000   | 1. 54. 44,8 |       |



TABLE XXI. EQUATION C.

| Arg. C. | Equat. C. |      | Diff. |  | Arg. C. | Equat. C. |      | Diff. |  | Arg. C. | Equat. C. |      | Diff. |
|---------|-----------|------|-------|--|---------|-----------|------|-------|--|---------|-----------|------|-------|
|         | M.        | S.   |       |  |         | M.        | S.   |       |  |         | M.        | S.   |       |
| 0       | 15.       | 20,0 | 113,7 |  | 3400    | 29.       | 21,6 | 40,1  |  | 6700    | 2.        | 11,7 | 65,7  |
| 100     | 13.       | 26,3 | 111,6 |  | 3500    | 30.       | 1,7  | 26,1  |  | 6800    | 3.        | 17,4 | 77,4  |
| 200     | 11.       | 34,7 | 108,3 |  | 3600    | 30.       | 27,8 | 11,9  |  | 6900    | 4.        | 34,8 | 87,6  |
| 300     | 9.        | 46,4 | 103,8 |  | 3700    | 30.       | 39,7 | 2,4   |  | 7000    | 6.        | 2,4  | 96,7  |
| 400     | 8.        | 2,6  | 96,2  |  | 3800    | 30.       | 37,3 | 16,8  |  | 7100    | 7.        | 39,1 | 103,6 |
| 500     | 6.        | 26,4 | 88,2  |  | 3900    | 30.       | 20,5 | 30,7  |  | 7200    | 9.        | 22,7 | 110,6 |
| 600     | 4.        | 58,2 | 78,5  |  | 4000    | 29.       | 49,8 | 44,0  |  | 7300    | 11.       | 13,3 | 113,5 |
| 700     | 3.        | 39,7 | 67,3  |  | 4100    | 29.       | 5,8  | 56,8  |  | 7400    | 13.       | 6,8  | 115,7 |
| 800     | 2.        | 32,4 | 55,4  |  | 4200    | 28.       | 9,0  | 68,5  |  | 7500    | 15.       | 2,5  | 116,1 |
| 900     | 1.        | 37,0 | 42,4  |  | 4300    | 27.       | 0,5  | 79,1  |  | 7600    | 16.       | 58,6 | 114,1 |
| 1000    | 0.        | 54,6 | 28,7  |  | 4400    | 25.       | 41,4 | 88,6  |  | 7700    | 18.       | 52,7 | 112,8 |
| 1100    | 0.        | 25,9 | 14,4  |  | 4500    | 24.       | 12,8 | 96,6  |  | 7800    | 20.       | 45,5 | 104,0 |
| 1200    | 0.        | 11,5 | 0,0   |  | 4600    | 22.       | 36,2 | 103,6 |  | 7900    | 22.       | 29,5 | 98,5  |
| 1300    | 0.        | 11,5 | 14,5  |  | 4700    | 20.       | 52,6 | 108,1 |  | 8000    | 24.       | 8,0  | 90,0  |
| 1400    | 0.        | 26,0 | 28,9  |  | 4800    | 19.       | 4,5  | 111,2 |  | 8100    | 25.       | 38,0 | 79,8  |
| 1500    | 0.        | 54,9 | 42,7  |  | 4900    | 17.       | 13,3 | 113,3 |  | 8200    | 26.       | 57,8 | 68,5  |
| 1600    | 1.        | 37,6 | 56,1  |  | 5000    | 15.       | 20,0 | 113,3 |  | 8300    | 28.       | 6,3  | 56,1  |
| 1700    | 2.        | 33,7 | 68,5  |  | 5100    | 13.       | 26,7 | 111,2 |  | 8400    | 29.       | 2,4  | 42,7  |
| 1800    | 3.        | 42,2 | 79,8  |  | 5200    | 11.       | 35,5 | 108,1 |  | 8500    | 29.       | 45,1 | 28,9  |
| 1900    | 5.        | 2,0  | 90,0  |  | 5300    | 9.        | 47,4 | 103,6 |  | 8600    | 30.       | 14,0 | 14,5  |
| 2000    | 6.        | 32,0 | 98,5  |  | 5400    | 8.        | 3,8  | 96,6  |  | 8700    | 30.       | 28,5 | 0,0   |
| 2100    | 8.        | 10,5 | 106,0 |  | 5500    | 6.        | 27,2 | 88,6  |  | 8800    | 30.       | 28,5 | 14,4  |
| 2200    | 9.        | 56,5 | 110,8 |  | 5600    | 4.        | 58,6 | 79,1  |  | 8900    | 30.       | 14,1 | 28,7  |
| 2300    | 11.       | 47,3 | 114,1 |  | 5700    | 3.        | 39,5 | 68,5  |  | 9000    | 29.       | 45,4 | 42,4  |
| 2400    | 13.       | 41,4 | 116,1 |  | 5800    | 2.        | 31,0 | 56,8  |  | 9100    | 29.       | 3,0  | 55,4  |
| 2500    | 15.       | 37,5 | 115,7 |  | 5900    | 1.        | 34,2 | 44,0  |  | 9200    | 28.       | 7,6  | 67,3  |
| 2600    | 17.       | 33,2 | 113,5 |  | 6000    | 0.        | 50,2 | 30,7  |  | 9300    | 27.       | 0,3  | 78,5  |
| 2700    | 19.       | 26,7 | 110,6 |  | 6100    | 0.        | 19,5 | 16,8  |  | 9400    | 25.       | 41,8 | 88,2  |
| 2800    | 21.       | 17,3 | 103,6 |  | 6200    | 0.        | 2,7  | 2,4   |  | 9500    | 24.       | 13,6 | 96,2  |
| 2900    | 23.       | 0,9  | 96,7  |  | 6300    | 0.        | 0,3  | 11,9  |  | 9600    | 22.       | 37,4 | 103,8 |
| 3000    | 24.       | 37,6 | 87,6  |  | 6400    | 0.        | 12,2 | 26,1  |  | 9700    | 20.       | 53,6 | 108,3 |
| 3100    | 26.       | 5,2  | 77,4  |  | 6500    | 0.        | 38,3 | 40,1  |  | 9800    | 19.       | 5,3  | 111,6 |
| 3200    | 27.       | 22,6 | 65,7  |  | 6600    | 1.        | 18,4 | 53,3  |  | 9900    | 17.       | 13,7 | 113,7 |
| 3300    | 28.       | 28,3 | 53,3  |  | 6700    | 2.        | 11,7 |       |  | 10000   | 15.       | 20,0 |       |



TABLE XXII. EQUATIONS D, E, F and G.

| Arg. D, E,<br>F and G. |     | Equat.<br>D | Equat.<br>E | Equat.<br>F | Equat.<br>G | Arg. D, E,<br>F and G. |     | Equat.<br>D | Equat.<br>E | Equat.<br>F | Equat.<br>G |
|------------------------|-----|-------------|-------------|-------------|-------------|------------------------|-----|-------------|-------------|-------------|-------------|
|                        |     | SEC.        | SEC.        | SEC.        | SEC.        |                        |     | SEC.        | SEC.        | SEC.        | SEC.        |
| 250                    | 250 | 57,0        | 31,0        | 94,0        | 48,0        | 500                    | 0   | 28,5        | 15,5        | 47,0        | 24,0        |
| 260                    | 240 | 56,9        | 31,0        | 93,9        | 47,9        | 510                    | 990 | 26,7        | 14,5        | 44,1        | 22,5        |
| 270                    | 230 | 56,8        | 30,9        | 93,6        | 47,8        | 520                    | 980 | 24,9        | 13,5        | 41,1        | 21,0        |
| 280                    | 220 | 56,5        | 30,7        | 93,2        | 47,6        | 530                    | 970 | 23,2        | 12,6        | 38,2        | 19,5        |
| 290                    | 210 | 56,1        | 30,5        | 92,5        | 47,3        | 540                    | 960 | 21,4        | 11,6        | 35,3        | 18,0        |
| 300                    | 200 | 55,6        | 30,3        | 91,7        | 46,8        | 550                    | 950 | 19,7        | 10,7        | 32,5        | 16,6        |
| 310                    | 190 | 55,0        | 29,9        | 90,7        | 46,3        | 560                    | 940 | 18,0        | 9,8         | 29,7        | 15,1        |
| 320                    | 180 | 54,3        | 29,5        | 89,5        | 45,7        | 570                    | 930 | 16,4        | 8,9         | 27,0        | 13,8        |
| 330                    | 170 | 53,5        | 29,1        | 88,2        | 45,0        | 580                    | 920 | 14,8        | 8,0         | 24,4        | 12,4        |
| 340                    | 160 | 52,5        | 28,6        | 86,7        | 44,3        | 590                    | 910 | 13,2        | 7,2         | 21,8        | 11,1        |
| 350                    | 150 | 51,5        | 28,0        | 85,0        | 43,4        | 600                    | 900 | 11,8        | 6,4         | 19,4        | 9,9         |
| 360                    | 140 | 50,4        | 27,4        | 83,2        | 42,5        | 610                    | 890 | 10,3        | 5,6         | 17,0        | 8,7         |
| 370                    | 130 | 49,3        | 26,8        | 81,3        | 41,6        | 620                    | 880 | 9,0         | 4,9         | 14,8        | 7,6         |
| 380                    | 120 | 48,0        | 26,1        | 79,2        | 40,6        | 630                    | 870 | 7,7         | 4,2         | 12,7        | 6,5         |
| 390                    | 110 | 46,7        | 25,4        | 77,0        | 39,5        | 640                    | 860 | 6,6         | 3,6         | 10,8        | 5,5         |
| 400                    | 100 | 45,2        | 24,6        | 74,6        | 38,2        | 650                    | 850 | 5,5         | 3,0         | 9,0         | 4,6         |
| 410                    | 90  | 43,8        | 23,8        | 72,2        | 36,9        | 660                    | 840 | 4,5         | 2,4         | 7,3         | 3,7         |
| 420                    | 80  | 42,2        | 23,0        | 69,6        | 35,6        | 670                    | 830 | 3,5         | 1,9         | 5,8         | 3,0         |
| 430                    | 70  | 40,6        | 22,1        | 67,0        | 34,2        | 680                    | 820 | 2,7         | 1,5         | 4,5         | 2,3         |
| 440                    | 60  | 39,0        | 21,2        | 64,3        | 32,9        | 695                    | 810 | 2,0         | 1,1         | 3,3         | 1,7         |
| 450                    | 50  | 37,3        | 20,3        | 61,5        | 31,4        | 700                    | 800 | 1,4         | 0,7         | 2,3         | 1,2         |
| 460                    | 40  | 35,6        | 19,4        | 58,7        | 30,0        | 710                    | 790 | 0,9         | 0,5         | 1,5         | 0,7         |
| 470                    | 30  | 33,8        | 18,4        | 55,8        | 28,5        | 720                    | 780 | 0,5         | 0,3         | 0,8         | 0,4         |
| 480                    | 20  | 32,1        | 17,5        | 52,9        | 27,0        | 730                    | 770 | 0,2         | 0,1         | 0,4         | 0,2         |
| 490                    | 10  | 30,3        | 16,5        | 49,9        | 25,5        | 740                    | 760 | 0,1         | 0,0         | 0,0         | 0,1         |
| 500                    | 0   | 28,5        | 15,5        | 47,0        | 24,0        | 750                    | 750 | 0,0         | 0,0         | 0,1         | 0,0         |



TABLE XXIII. REDUCTION.

| Arg. H. |      | Red. | Diff. | Arg. H. |      | Red. | Diff. | Arg. H. |       | Red. | Diff. |
|---------|------|------|-------|---------|------|------|-------|---------|-------|------|-------|
|         |      | SEC. | SEC.  |         |      | SEC. | SEC.  |         |       | SEC. | SEC.  |
| 0       | 5000 | 46,6 |       | 1700    | 6700 | 7,3  |       | 3400    | 8400  | 88,7 |       |
| 100     | 5100 | 40,8 | 5,8   | 1800    | 6800 | 10,7 | 3,4   | 3500    | 8500  | 90,9 | 2,2   |
| 200     | 5200 | 35,0 | 5,8   | 1900    | 6900 | 14,7 | 4,0   | 3600    | 8600  | 92,4 | 1,5   |
| 300     | 5300 | 29,4 | 5,6   | 2000    | 7000 | 19,2 | 4,5   | 3700    | 8700  | 93,1 | 0,7   |
|         |      |      | 5,2   |         |      |      | 5,0   |         |       |      | 0,0   |
| 400     | 5400 | 24,2 | 5,0   | 2100    | 7100 | 24,2 | 5,2   | 3800    | 8800  | 93,1 | 0,7   |
| 500     | 5500 | 19,2 | 4,5   | 2200    | 7200 | 29,4 | 5,6   | 3900    | 8900  | 92,4 | 1,5   |
| 600     | 5600 | 14,7 | 4,0   | 2300    | 7300 | 35,0 | 5,8   | 4000    | 9000  | 90,9 | 2,2   |
| 700     | 5700 | 10,7 | 3,4   | 2400    | 7400 | 40,8 | 5,8   | 4100    | 9100  | 88,7 | 2,8   |
|         |      |      | 2,8   |         |      |      | 5,8   |         |       |      | 3,4   |
| 800     | 5800 | 7,3  | 2,2   | 2500    | 7500 | 46,6 | 5,8   | 4200    | 9200  | 85,9 | 4,0   |
| 900     | 5900 | 4,5  | 1,5   | 2600    | 7600 | 52,4 | 5,6   | 4300    | 9300  | 82,5 | 4,5   |
| 1000    | 6000 | 2,3  | 0,7   | 2700    | 7700 | 58,2 | 5,2   | 4400    | 9400  | 78,5 | 5,0   |
| 1100    | 6100 | 0,8  | 0,0   | 2800    | 7800 | 63,8 | 5,0   | 4500    | 9500  | 74,0 | 5,2   |
|         |      |      | 0,0   |         |      |      | 4,5   |         |       |      | 5,6   |
| 1200    | 6200 | 0,1  | 0,7   | 2900    | 7900 | 69,0 | 4,0   | 4600    | 9600  | 69,0 | 5,8   |
| 1300    | 6300 | 0,1  | 1,5   | 3000    | 8000 | 74,0 | 3,4   | 4700    | 9700  | 63,8 | 2,8   |
| 1400    | 6400 | 0,8  | 2,2   | 3100    | 8100 | 78,5 | 2,8   | 4800    | 9800  | 58,2 |       |
| 1500    | 6500 | 2,3  | 2,8   | 3200    | 8200 | 82,5 |       | 4900    | 9900  | 52,4 |       |
|         |      |      |       |         |      |      |       |         |       |      |       |
| 1600    | 6600 | 4,5  |       | 3300    | 8300 | 85,9 |       | 5000    | 10000 | 46,6 |       |
| 1700    | 6700 | 7,3  |       | 3400    | 8400 | 88,7 |       |         |       |      |       |

TABLE XXIV. Second Part of the Reduction, which depends on the Sum of the Arguments H and L; with the Numbers H, I, K, and L, the Sum of which is the Argument of the Half-Duration.

| Arg. H+L |      | Red. H+L | Number H | Diff. | Number I | Number K | Number L | Diff. |
|----------|------|----------|----------|-------|----------|----------|----------|-------|
|          |      | SEC.     |          |       |          |          |          |       |
| 7500     | 7500 | 0,0      | 0,3627   | 11    | 0,0026   | 0,0116   | 0,1658   | 2     |
| 7600     | 7400 | 0,0      | 0,3638   | 33    | 0,0026   | 0,0116   | 0,1656   | 5     |
| 7700     | 7300 | 0,1      | 0,3671   | 53    | 0,0026   | 0,0116   | 0,1651   | 8     |
| 7800     | 7200 | 0,2      | 0,3724   | 75    | 0,0026   | 0,0115   | 0,1643   | 11    |
| 7900     | 7100 | 0,4      | 0,3799   | 96    | 0,0025   | 0,0114   | 0,1632   | 15    |
| 8000     | 7000 | 0,7      | 0,3895   | 117   | 0,0025   | 0,0113   | 0,1617   | 18    |
| 8100     | 6900 | 1,0      | 0,4012   | 136   | 0,0025   | 0,0112   | 0,1599   | 20    |
| 8200     | 6800 | 1,4      | 0,4148   | 156   | 0,0025   | 0,0111   | 0,1579   | 24    |
| 8300     | 6700 | 1,8      | 0,4304   | 175   | 0,0024   | 0,0109   | 0,1555   | 26    |
| 8400     | 6600 | 2,2      | 0,4479   | 193   | 0,0024   | 0,0107   | 0,1529   | 30    |
| 8500     | 6500 | 2,7      | 0,4672   | 211   | 0,0023   | 0,0105   | 0,1499   | 31    |
| 8600     | 6400 | 3,3      | 0,4883   | 227   | 0,0023   | 0,0103   | 0,1468   | 35    |
| 8700     | 6300 | 3,8      | 0,5110   | 244   | 0,0022   | 0,0100   | 0,1433   | 37    |
| 8800     | 6200 | 4,5      | 0,5354   | 258   | 0,0022   | 0,0098   | 0,1396   | 39    |
| 8900     | 6100 | 5,2      | 0,5612   | 271   | 0,0021   | 0,0095   | 0,1357   | 41    |
| 9000     | 6000 | 5,9      | 0,5883   |       | 0,0021   | 0,0092   | 0,1316   |       |



TABLE XXIV. Second Part of the Reduction, which depends on the Sum of the Arguments H and L; with the Numbers H, I, K and L, the Sum of which is the Argument of the Half duration

| ARGUMENT<br>H+L |      | Red.<br>H+L<br>SEC. | Number<br>H | Diff. | Number<br>I | Number<br>K | Number<br>L | Diff. |
|-----------------|------|---------------------|-------------|-------|-------------|-------------|-------------|-------|
| 9000            | 6000 | 5,9                 | 0,5883      | 285   | 0,0021      | 0,0092      | 0,1316      | 43    |
| 9100            | 5900 | 6,6                 | 0,6168      | 295   | 0,0020      | 0,0089      | 0,1273      | 45    |
| 9200            | 5800 | 7,4                 | 0,6463      | 307   | 0,0019      | 0,0086      | 0,1228      | 46    |
| 9300            | 5700 | 8,2                 | 0,6770      | 315   | 0,0018      | 0,0083      | 0,1182      | 48    |
| 9400            | 5600 | 9,0                 | 0,7085      | 324   | 0,0018      | 0,0079      | 0,1134      | 49    |
| 9500            | 5500 | 9,8                 | 0,7409      | 330   | 0,0017      | 0,0076      | 0,1085      | 50    |
| 9600            | 5400 | 10,7                | 0,7739      | 336   | 0,0016      | 0,0072      | 0,1035      | 50    |
| 9700            | 5300 | 11,6                | 0,8075      | 339   | 0,0015      | 0,0069      | 0,0985      | 52    |
| 9800            | 5200 | 12,4                | 0,8414      | 342   | 0,0015      | 0,0065      | 0,0933      | 52    |
| 9900            | 5100 | 13,3                | 0,8756      | 344   | 0,0014      | 0,0062      | 0,0881      | 52    |
| 0               | 5000 | 14,2                | 0,9100      | 344   | 0,0013      | 0,0058      | 0,0829      | 52    |
| 100             | 4900 | 15,1                | 0,9444      | 342   | 0,0012      | 0,0054      | 0,0777      | 52    |
| 200             | 4800 | 16,0                | 0,9786      | 339   | 0,0011      | 0,0051      | 0,0725      | 52    |
| 300             | 4700 | 16,8                | 1,0125      | 336   | 0,0011      | 0,0047      | 0,0673      | 50    |
| 400             | 4600 | 17,7                | 1,0461      | 330   | 0,0010      | 0,0044      | 0,0623      | 50    |
| 500             | 4500 | 18,6                | 1,0791      | 324   | 0,0009      | 0,0040      | 0,0573      | 49    |
| 600             | 4400 | 19,4                | 1,1115      | 315   | 0,0008      | 0,0037      | 0,0524      | 48    |
| 700             | 4300 | 20,2                | 1,1430      | 307   | 0,0008      | 0,0033      | 0,0476      | 46    |
| 800             | 4200 | 21,0                | 1,1737      | 295   | 0,0007      | 0,0030      | 0,0430      | 45    |
| 900             | 4100 | 21,8                | 1,2032      | 285   | 0,0006      | 0,0027      | 0,0385      | 43    |
| 1000            | 4000 | 22,5                | 1,2317      | 271   | 0,0005      | 0,0024      | 0,0342      | 41    |
| 1100            | 3900 | 23,2                | 1,2588      | 258   | 0,0005      | 0,0021      | 0,0301      | 39    |
| 1200            | 3800 | 23,9                | 1,2846      | 244   | 0,0004      | 0,0018      | 0,0262      | 37    |
| 1300            | 3700 | 24,6                | 1,3090      | 227   | 0,0004      | 0,0016      | 0,0225      | 35    |
| 1400            | 3600 | 25,1                | 1,3317      | 211   | 0,0003      | 0,0013      | 0,0190      | 31    |
| 1500            | 3500 | 25,7                | 1,3528      | 193   | 0,0003      | 0,0011      | 0,0159      | 30    |
| 1600            | 3400 | 26,2                | 1,3721      | 175   | 0,0002      | 0,0009      | 0,0129      | 26    |
| 1700            | 3300 | 26,6                | 1,3896      | 156   | 0,0002      | 0,0006      | 0,0103      | 24    |
| 1800            | 3200 | 27,0                | 1,4052      | 136   | 0,0001      | 0,0004      | 0,0079      | 20    |
| 1900            | 3100 | 27,4                | 1,4188      | 117   | 0,0001      | 0,0003      | 0,0059      | 18    |
| 2000            | 3000 | 27,7                | 1,4305      | 96    | 0,0001      | 0,0002      | 0,0041      | 15    |
| 2100            | 2900 | 28,0                | 1,4401      | 75    | 0,0001      | 0,0001      | 0,0026      | 11    |
| 2200            | 2800 | 28,2                | 1,4476      | 53    | 0,0000      | 0,0000      | 0,0015      | 8     |
| 2300            | 2700 | 28,3                | 1,4529      | 33    | 0,0000      | 0,0000      | 0,0007      | 5     |
| 2400            | 2600 | 28,4                | 1,4562      | 11    | 0,0000      | 0,0000      | 0,0002      | 2     |
| 2500            | 2500 | 28,4                | 1,4573      |       | 0,0000      | 0,0000      | 0,0000      |       |



TABLE XXV. Semi-durations.

| ARGUMENT M. |        | Semi-durations. | Diff. | Numb. | ARGUMENT M. |        | Semi-durations. | Diff. | Numb. |
|-------------|--------|-----------------|-------|-------|-------------|--------|-----------------|-------|-------|
|             |        | H. M. S.        | SEC.  | N     |             |        | H. M. S.        | SEC.  | N     |
| 1,0000      | 1,0000 | 1. 25. 27.5     | 0,3   | 1,000 | 1,3300      | 0,6700 | 1. 20. 31,9     | 18,4  | 0,829 |
| 1,0100      | 0,9900 | 1. 25. 21,2     | 0,7   | 1,000 | 1,3400      | 0,6600 | 1. 20. 13,5     | 19,0  | 0,817 |
| 1,0200      | 0,9800 | 1. 25. 20,5     | 1,3   | 0,999 | 1,3500      | 0,6500 | 1. 19. 54,5     | 19,6  | 0,806 |
| 1,0300      | 0,9700 | 1. 25. 19,2     | 1,9   | 0,999 | 1,3600      | 0,6400 | 1. 19. 34,9     | 20,3  | 0,794 |
| 1,0400      | 0,9600 | 1. 25. 17,3     | 2,3   | 0,998 | 1,3700      | 0,6300 | 1. 19. 14,6     | 20,9  | 0,782 |
| 1,0500      | 0,9500 | 1. 25. 15,0     | 2,8   | 0,996 | 1,3800      | 0,6200 | 1. 18. 53,7     | 21,6  | 0,769 |
| 1,0600      | 0,9400 | 1. 25. 12,2     | 3,4   | 0,995 | 1,3900      | 0,6100 | 1. 18. 32,1     | 22,2  | 0,756 |
| 1,0700      | 0,9300 | 1. 25. 8,8      | 3,8   | 0,993 | 1,4000      | 0,6000 | 1. 18. 9,9      | 22,8  | 0,742 |
| 1,0800      | 0,9200 | 1. 25. 5,0      | 4,5   | 0,990 | 1,4100      | 0,5900 | 1. 17. 47,1     | 23,6  | 0,728 |
| 1,0900      | 0,9100 | 1. 25. 0,5      | 4,9   | 0,988 | 1,4200      | 0,5800 | 1. 17. 23,5     | 24,3  | 0,713 |
| 1,1000      | 0,9000 | 1. 24. 55,6     | 5,5   | 0,985 | 1,4300      | 0,5700 | 1. 16. 59,2     | 25,0  | 0,698 |
| 1,1100      | 0,8900 | 1. 24. 50,1     | 6,0   | 0,982 | 1,4400      | 0,5600 | 1. 16. 34,2     | 25,7  | 0,682 |
| 1,1200      | 0,8800 | 1. 24. 44,1     | 6,5   | 0,978 | 1,4500      | 0,5500 | 1. 16. 8,5      | 26,4  | 0,666 |
| 1,1300      | 0,8700 | 1. 24. 37,6     | 7,0   | 0,974 | 1,4600      | 0,5400 | 1. 15. 42,1     | 27,2  | 0,650 |
| 1,1400      | 0,8600 | 1. 24. 30,6     | 7,6   | 0,970 | 1,4700      | 0,5300 | 1. 15. 14,9     | 27,9  | 0,632 |
| 1,1500      | 0,8500 | 1. 24. 23,0     | 8,1   | 0,966 | 1,4800      | 0,5200 | 1. 14. 47,0     | 28,7  | 0,615 |
| 1,1600      | 0,8400 | 1. 24. 14,9     | 8,7   | 0,961 | 1,4900      | 0,5100 | 1. 14. 18,3     | 29,5  | 0,596 |
| 1,1700      | 0,8300 | 1. 24. 6,2      | 9,2   | 0,956 | 1,5000      | 0,5000 | 1. 13. 48,8     | 30,3  | 0,577 |
| 1,1800      | 0,8200 | 1. 23. 57,0     | 9,7   | 0,951 | 1,5100      | 0,4900 | 1. 13. 18,5     | 31,0  | 0,558 |
| 1,1900      | 0,8100 | 1. 23. 47,3     | 10,3  | 0,945 | 1,5200      | 0,4800 | 1. 12. 47,5     | 31,8  | 0,538 |
| 1,2000      | 0,8000 | 1. 23. 37,0     | 10,7  | 0,939 | 1,5300      | 0,4700 | 1. 12. 15,7     | 32,8  | 0,517 |
| 1,2100      | 0,7900 | 1. 23. 26,3     | 11,4  | 0,933 | 1,5400      | 0,4600 | 1. 11. 42,9     | 33,6  | 0,495 |
| 1,2200      | 0,7800 | 1. 23. 14,9     | 11,9  | 0,926 | 1,5500      | 0,4500 | 1. 11. 9,3      | 34,5  | 0,473 |
| 1,2300      | 0,7700 | 1. 23. 3,0      | 12,6  | 0,919 | 1,5600      | 0,4400 | 1. 10. 34,8     | 35,4  | 0,450 |
| 1,2400      | 0,7600 | 1. 22. 50,4     | 13,0  | 0,912 | 1,5700      | 0,4300 | 1. 9. 59,4      | 36,4  | 0,426 |
| 1,2500      | 0,7500 | 1. 22. 37,4     | 13,6  | 0,904 | 1,5800      | 0,4200 | 1. 9. 23,0      | 37,3  | 0,402 |
| 1,2600      | 0,7400 | 1. 22. 23,8     | 14,3  | 0,896 | 1,5900      | 0,4100 | 1. 8. 45,7      | 38,2  | 0,376 |
| 1,2700      | 0,7300 | 1. 22. 9,5      | 14,8  | 0,887 | 1,6000      | 0,4000 | 1. 8. 7,5       | 39,5  | 0,350 |
| 1,2800      | 0,7200 | 1. 21. 54,7     | 15,3  | 0,878 | 1,6100      | 0,3900 | 1. 7. 28,0      | 40,4  | 0,323 |
| 1,2900      | 0,7100 | 1. 21. 39,4     | 16,0  | 0,869 | 1,6200      | 0,3800 | 1. 6. 47,6      | 41,4  | 0,295 |
| 1,3000      | 0,7000 | 1. 21. 23,4     | 16,6  | 0,860 | 1,6300      | 0,3700 | 1. 6. 6,2       | 42,5  | 0,266 |
| 1,3100      | 0,6900 | 1. 21. 6,8      | 17,1  | 0,850 | 1,6400      | 0,3600 | 1. 5. 23,7      | 43,3  | 0,235 |
| 1,3200      | 0,6800 | 1. 20. 49,7     | 17,8  | 0,840 | 1,6500      | 0,3500 | 1. 4. 40,4      |       | 0,204 |
| 1,3300      | 0,6700 | 1. 20. 31,9     |       | 0,829 |             |        |                 |       |       |



TABLE XXVI. The correction of the Semi-durations.

|             |      |      |      | NUMBER N. |       |       |       |       |       |       |       |       |       |
|-------------|------|------|------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ARGUMENT C. |      |      |      | 1,000     | 0,900 | 0,800 | 0,700 | 0,600 | 0,500 | 0,400 | 0,300 | 0,200 | 0,100 |
|             |      |      |      | SEC.      | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  | SEC.  |
| 000         | 5000 | 5000 | 000  | 0,0       | 4,8   | 9,7   | 14,5  | 19,4  | 24,3  | 29,1  | 34,0  | 37,8  | 43,7  |
| 100         | 4900 | 5100 | 9900 | 0,4       | 5,2   | 10,0  | 14,8  | 19,6  | 24,4  | 29,3  | 34,1  | 38,9  | 43,7  |
| 200         | 4800 | 5200 | 9800 | 1,5       | 6,2   | 10,9  | 15,7  | 20,4  | 25,0  | 29,7  | 34,4  | 39,1  | 43,8  |
| 300         | 4700 | 5300 | 9700 | 3,5       | 8,0   | 12,5  | 17,0  | 21,5  | 25,9  | 30,4  | 34,9  | 39,5  | 44,0  |
| 400         | 4600 | 5400 | 9600 | 6,0       | 10,3  | 14,5  | 18,9  | 23,0  | 27,3  | 31,5  | 35,7  | 40,0  | 44,3  |
| 500         | 4500 | 5500 | 9500 | 9,2       | 13,2  | 17,1  | 21,0  | 25,0  | 28,8  | 32,7  | 36,7  | 40,6  | 44,6  |
| 600         | 4400 | 5600 | 9400 | 13,2      | 16,7  | 20,3  | 23,6  | 27,3  | 30,8  | 34,1  | 38,0  | 41,4  | 44,9  |
| 700         | 4300 | 5700 | 9300 | 17,6      | 20,6  | 23,7  | 26,9  | 30,0  | 33,1  | 36,1  | 39,2  | 42,3  | 45,4  |
| 800         | 4200 | 5800 | 9200 | 22,5      | 25,1  | 27,7  | 30,2  | 32,8  | 35,4  | 38,1  | 40,7  | 43,3  | 45,9  |
| 900         | 4100 | 5900 | 9100 | 27,8      | 29,9  | 32,0  | 34,1  | 36,1  | 38,1  | 40,2  | 42,2  | 44,4  | 46,5  |
| 1000        | 4000 | 6000 | 9000 | 33,5      | 35,1  | 37,0  | 38,0  | 40,2  | 41,0  | 42,5  | 44,0  | 45,5  | 46,9  |
| 1100        | 3900 | 6100 | 8900 | 39,4      | 40,4  | 41,2  | 42,0  | 43,0  | 43,9  | 44,8  | 45,7  | 46,7  | 47,5  |
| 1200        | 3800 | 6200 | 8800 | 45,4      | 45,7  | 46,1  | 46,3  | 46,7  | 46,9  | 47,2  | 47,3  | 47,9  | 48,2  |
| 1300        | 3700 | 6300 | 8700 | 51,6      | 51,3  | 50,2  | 50,6  | 50,3  | 50,0  | 49,7  | 49,4  | 49,1  | 48,8  |
| 1400        | 3600 | 6400 | 8600 | 57,6      | 56,6  | 54,9  | 54,9  | 54,1  | 53,1  | 52,1  | 51,3  | 50,3  | 49,4  |
| 1500        | 3500 | 6500 | 8500 | 63,5      | 64,0  | 59,5  | 59,0  | 57,5  | 56,0  | 54,5  | 53,0  | 51,5  | 50,0  |
| 1600        | 3400 | 6600 | 8400 | 69,1      | 67,1  | 66,0  | 62,9  | 60,9  | 58,5  | 56,7  | 54,6  | 52,6  | 50,6  |
| 1700        | 3300 | 6700 | 8300 | 74,5      | 71,9  | 69,3  | 66,7  | 64,1  | 61,5  | 58,8  | 56,3  | 53,7  | 51,1  |
| 1800        | 3200 | 6800 | 8200 | 79,4      | 76,3  | 73,2  | 70,1  | 67,0  | 63,9  | 60,9  | 57,8  | 54,6  | 51,6  |
| 1900        | 3100 | 6900 | 8100 | 83,8      | 80,3  | 76,7  | 73,2  | 69,7  | 66,1  | 62,6  | 59,0  | 55,6  | 52,0  |
| 2000        | 3000 | 7000 | 8000 | 87,8      | 83,8  | 79,9  | 75,9  | 72,0  | 68,2  | 64,2  | 60,3  | 56,4  | 52,5  |
| 2100        | 2900 | 7100 | 7900 | 91,0      | 86,8  | 82,5  | 78,1  | 73,9  | 69,7  | 65,5  | 61,2  | 56,9  | 52,7  |
| 2200        | 2800 | 7200 | 7800 | 93,6      | 89,1  | 84,5  | 80,0  | 75,5  | 70,9  | 66,5  | 62,0  | 57,5  | 53,0  |
| 2300        | 2700 | 7300 | 7700 | 95,5      | 90,8  | 86,1  | 81,3  | 76,6  | 71,9  | 67,3  | 62,6  | 57,9  | 53,2  |
| 2400        | 2600 | 7400 | 7600 | 96,6      | 91,9  | 87,1  | 82,2  | 77,4  | 72,6  | 67,7  | 62,9  | 58,1  | 53,3  |
| 2500        | 2500 | 7500 | 7500 | 97,0      | 92,2  | 87,4  | 82,4  | 77,6  | 72,8  | 67,9  | 63,0  | 58,2  | 53,4  |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | c   | C   |
|---------|----------------|-----|-----|------|-------|------|------|-----|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |     |     |
| B. 1660 | 6.             | 4.  | 36. | 25,3 | 32298 | 5270 | 3524 | 770 | 707 |
| 1661    | 6.             | 6.  | 15. | 52,4 | 35335 | 5277 | 2687 | 955 | 543 |
| 1662    | 7.             | 3.  | 55. | 19,5 | 02312 | 5087 | 1670 | 567 | 361 |
| 1663    | 0.             | 11. | 35. | 10,8 | 05349 | 5093 | 0832 | 751 | 196 |
| B. 1664 | 7.             | 3.  | 14. | 13,8 | 08445 | 5295 | 0173 | 508 | 048 |
| 1665    | 0.             | 10. | 54. | 5,1  | 11423 | 5105 | 9155 | 121 | 867 |
| 1666    | 0.             | 22. | 33. | 32,2 | 14460 | 5111 | 8317 | 305 | 702 |
| 1667    | 1.             | 10. | 12. | 59,3 | 17496 | 5117 | 7481 | 490 | 537 |
| B. 1668 | 0.             | 21. | 52. | 26,4 | 20533 | 5124 | 6643 | 674 | 372 |
| 1669    | 1.             | 9.  | 31. | 53,5 | 23570 | 5130 | 5808 | 859 | 208 |
| 1670    | 1.             | 21. | 11. | 20,6 | 26607 | 5136 | 4972 | 043 | 043 |
| 1671    | 2.             | 8.  | 50. | 47,7 | 29644 | 5142 | 4134 | 228 | 878 |
| B. 1672 | 1.             | 20. | 30. | 14,9 | 32681 | 5148 | 3297 | 413 | 713 |
| 1673    | 2.             | 8.  | 9.  | 42,0 | 35717 | 5155 | 2460 | 597 | 548 |
| 1674    | 2.             | 19. | 49. | 9,1  | 02754 | 5161 | 1622 | 782 | 383 |
| 1675    | 3.             | 7.  | 28. | 36,2 | 05792 | 5167 | 0783 | 966 | 218 |
| B. 1676 | 2.             | 19. | 8.  | 3,3  | 08828 | 5173 | 9945 | 151 | 053 |
| 1677    | 3.             | 6.  | 47. | 30,4 | 11865 | 5179 | 9108 | 336 | 889 |
| 1678    | 3.             | 18. | 26. | 57,5 | 14902 | 5186 | 8270 | 520 | 724 |
| 1679    | 4.             | 6.  | 6.  | 24,6 | 17938 | 5192 | 7433 | 705 | 559 |
| B. 1680 | 3.             | 17. | 45. | 51,8 | 20976 | 5198 | 6597 | 889 | 394 |
| 1681    | 4.             | 5.  | 25. | 18,9 | 24013 | 5204 | 5760 | 074 | 229 |
| 1682    | 4.             | 17. | 4.  | 46,0 | 27049 | 5210 | 4922 | 259 | 064 |
| 1683    | 5.             | 4.  | 44. | 13,1 | 30086 | 5216 | 4085 | 443 | 899 |
| B. 1684 | 4.             | 16. | 23. | 40,2 | 33123 | 5223 | 3248 | 628 | 734 |
| 1685    | 5.             | 4.  | 3.  | 7,3  | 00160 | 5229 | 2410 | 812 | 570 |
| 1686    | 5.             | 15. | 42. | 34,4 | 03196 | 5235 | 1574 | 997 | 405 |
| 1687    | 6.             | 3.  | 22. | 1,6  | 06233 | 5241 | 0738 | 181 | 240 |
| B. 1688 | 5.             | 15. | 1.  | 28,7 | 09270 | 5247 | 9902 | 366 | 075 |
| 1689    | 6.             | 2.  | 40. | 55,8 | 12307 | 5254 | 9065 | 551 | 910 |
| 1690    | 6.             | 14. | 20. | 22,9 | 15344 | 5260 | 8227 | 735 | 746 |
| 1691    | 7.             | 1.  | 59. | 50,0 | 18381 | 5266 | 7389 | 920 | 580 |
| B. 1692 | 6.             | 13. | 39. | 17,1 | 21417 | 5272 | 6550 | 104 | 416 |
| 1693    | 7.             | 1.  | 18. | 44,2 | 24454 | 5278 | 5711 | 289 | 251 |
| 1694    | 0.             | 8.  | 58. | 35,5 | 27431 | 5088 | 4693 | 901 | 070 |
| B. 1695 | 0.             | 20. | 38. | 2,6  | 30468 | 5094 | 3856 | 086 | 905 |
| 1696    | 0.             | 8.  | 17. | 29,7 | 33505 | 5101 | 3019 | 270 | 740 |
| 1697    | 0.             | 19. | 56. | 56,9 | 00542 | 5107 | 2182 | 455 | 575 |
| 1698    | 1.             | 7.  | 36. | 24,0 | 03579 | 5113 | 1346 | 640 | 410 |
| 1699    | 1.             | 19. | 15. | 51,1 | 06615 | 5119 | 0511 | 824 | 245 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | D   | E   | F   | G   | H    | I    | K    | L    |
|---------|-----|-----|-----|-----|------|------|------|------|
| B. 1660 | 720 | 585 | 990 | 116 | 5380 | 4494 | 2707 | 1250 |
| 1661    | 802 | 667 | 749 | 868 | 6230 | 5357 | 3624 | 2428 |
| 1662    | 878 | 748 | 492 | 606 | 7057 | 6202 | 4524 | 3582 |
| 1663    | 955 | 831 | 250 | 359 | 7901 | 7065 | 5442 | 4761 |
| B. 1664 | 033 | 915 | 024 | 127 | 8762 | 7946 | 6379 | 5962 |
| 1665    | 108 | 996 | 767 | 865 | 9590 | 8792 | 7279 | 7118 |
| 1666    | 185 | 078 | 526 | 617 | 0435 | 9655 | 8197 | 8296 |
| 1667    | 262 | 160 | 284 | 370 | 1277 | 0518 | 9114 | 9473 |
| B. 1668 | 339 | 243 | 042 | 123 | 2121 | 1379 | 0031 | 0650 |
| 1669    | 415 | 325 | 801 | 876 | 2962 | 2240 | 0947 | 1826 |
| 1670    | 492 | 407 | 558 | 628 | 3805 | 3101 | 1863 | 3002 |
| 1671    | 569 | 490 | 317 | 381 | 4649 | 3963 | 2780 | 4180 |
| B. 1672 | 645 | 572 | 076 | 134 | 5492 | 4826 | 3698 | 5357 |
| 1673    | 723 | 655 | 834 | 886 | 6336 | 5688 | 4615 | 6535 |
| 1674    | 799 | 737 | 592 | 639 | 7180 | 6551 | 5534 | 7713 |
| 1675    | 876 | 820 | 351 | 392 | 8025 | 7415 | 6452 | 8892 |
| B. 1676 | 953 | 902 | 109 | 145 | 8869 | 8278 | 7371 | 0070 |
| 1677    | 030 | 984 | 867 | 897 | 9713 | 9140 | 8288 | 1248 |
| 1678    | 106 | 067 | 626 | 650 | 0556 | 0003 | 9205 | 2426 |
| 1679    | 183 | 149 | 384 | 403 | 1400 | 0865 | 0123 | 3603 |
| B. 1680 | 260 | 232 | 143 | 156 | 2243 | 1726 | 1039 | 4779 |
| 1681    | 337 | 314 | 901 | 908 | 3086 | 2589 | 1957 | 5957 |
| 1682    | 414 | 396 | 659 | 661 | 3930 | 3451 | 2874 | 7134 |
| 1683    | 490 | 479 | 418 | 414 | 4773 | 4313 | 3791 | 8313 |
| B. 1684 | 567 | 561 | 176 | 167 | 5617 | 5176 | 4709 | 9489 |
| 1685    | 644 | 643 | 934 | 919 | 6460 | 6038 | 5626 | 0667 |
| 1686    | 721 | 726 | 693 | 672 | 7305 | 6899 | 6543 | 1843 |
| 1687    | 797 | 808 | 451 | 425 | 8145 | 7761 | 7459 | 3020 |
| B. 1688 | 874 | 891 | 209 | 177 | 8988 | 8622 | 8376 | 4196 |
| 1689    | 951 | 973 | 968 | 930 | 9831 | 9483 | 9292 | 5373 |
| 1690    | 027 | 055 | 726 | 683 | 0675 | 0347 | 0210 | 6551 |
| 1691    | 104 | 138 | 484 | 436 | 1520 | 1210 | 1129 | 7730 |
| B. 1692 | 181 | 220 | 243 | 188 | 2364 | 2073 | 2047 | 8908 |
| 1693    | 258 | 303 | 001 | 941 | 3212 | 2938 | 2967 | 0083 |
| 1694    | 333 | 384 | 744 | 679 | 4038 | 3784 | 3867 | 1243 |
| 1695    | 410 | 466 | 503 | 432 | 4881 | 4647 | 4784 | 2421 |
| B. 1696 | 487 | 549 | 261 | 185 | 5725 | 5510 | 5702 | 3598 |
| 1697    | 564 | 631 | 020 | 937 | 6567 | 6369 | 6618 | 4775 |
| 1698    | 641 | 713 | 778 | 690 | 7410 | 7232 | 7535 | 5951 |
| 1699    | 717 | 795 | 536 | 443 | 8252 | 8092 | 8450 | 7127 |



TABLE XXVII. *Epochs* of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.

| YEARS. | Mean Conjunct. |    |     |     | A    | S     | B    | c    | C   |     |
|--------|----------------|----|-----|-----|------|-------|------|------|-----|-----|
|        | D.             | H. | M.  | S.  |      |       |      |      |     |     |
| B.     | 1700           | 2. | 6.  | 55. | 18,2 | 09653 | 5125 | 9674 | 009 | 080 |
|        | 1701           | 2. | 18. | 34. | 45,3 | 12690 | 5132 | 8835 | 193 | 915 |
|        | 1702           | 3. | 6.  | 14. | 12,4 | 15726 | 5138 | 7997 | 378 | 750 |
|        | 1703           | 3. | 17. | 53. | 39,5 | 18763 | 5144 | 7157 | 563 | 585 |
|        | 1704           | 3. | 5.  | 33. | 6,7  | 21800 | 5150 | 6319 | 747 | 421 |
| B.     | 1705           | 3. | 17. | 12. | 33,8 | 24836 | 5156 | 5483 | 932 | 256 |
|        | 1706           | 4. | 4.  | 52. | 0,9  | 27873 | 5163 | 4647 | 116 | 091 |
|        | 1707           | 4. | 16. | 31. | 28,0 | 30910 | 5169 | 3809 | 301 | 926 |
|        | 1708           | 4. | 4.  | 10. | 55,1 | 33947 | 5175 | 2973 | 485 | 761 |
|        | 1709           | 4. | 15. | 50. | 22,2 | 00984 | 5181 | 2136 | 670 | 596 |
| B.     | 1710           | 5. | 3.  | 29. | 49,3 | 04021 | 5187 | 1299 | 855 | 431 |
|        | 1711           | 5. | 15. | 9.  | 16,4 | 07058 | 5193 | 0462 | 039 | 267 |
|        | 1712           | 5. | 2.  | 48. | 43,6 | 10094 | 5200 | 9624 | 224 | 102 |
|        | 1713           | 5. | 14. | 28. | 10,7 | 13131 | 5206 | 8786 | 408 | 937 |
|        | 1714           | 6. | 2.  | 7.  | 37,8 | 16168 | 5212 | 7947 | 593 | 772 |
| B.     | 1715           | 6. | 13. | 47. | 4,9  | 19204 | 5218 | 7108 | 778 | 608 |
|        | 1716           | 6. | 1.  | 26. | 32,0 | 22242 | 5224 | 6271 | 962 | 443 |
|        | 1717           | 6. | 13. | 5.  | 59,1 | 25279 | 5231 | 5433 | 147 | 278 |
|        | 1718           | 7. | 0.  | 45. | 26,2 | 28315 | 5237 | 4597 | 331 | 113 |
|        | 1719           | 0  | 8.  | 25. | 17,5 | 31292 | 5047 | 3581 | 944 | 932 |
| B.     | 1720           | 7. | 0.  | 4.  | 20,5 | 34389 | 5249 | 2925 | 700 | 783 |
|        | 1721           | 0. | 7.  | 44. | 11,8 | 01366 | 5059 | 1909 | 313 | 602 |
|        | 1722           | 0. | 19. | 23. | 38,9 | 04402 | 5065 | 1070 | 497 | 437 |
|        | 1723           | 1. | 7.  | 3.  | 6,0  | 07439 | 5072 | 0233 | 682 | 272 |
|        | 1724           | 0. | 18. | 42. | 33,1 | 10476 | 5078 | 9394 | 867 | 107 |
| B.     | 1725           | 1. | 6.  | 22. | 0,2  | 13512 | 5084 | 8556 | 051 | 942 |
|        | 1726           | 1. | 18. | 1.  | 27,3 | 16549 | 5090 | 7718 | 236 | 777 |
|        | 1727           | 2. | 5.  | 40. | 54,4 | 19587 | 5096 | 6882 | 420 | 613 |
|        | 1728           | 1. | 17. | 20. | 21,5 | 22623 | 5102 | 6046 | 605 | 448 |
|        | 1729           | 2. | 4.  | 59. | 48,6 | 25660 | 5109 | 5208 | 789 | 283 |
| B.     | 1730           | 2. | 16. | 39. | 15,8 | 28697 | 5115 | 4372 | 974 | 118 |
|        | 1731           | 3. | 4.  | 18. | 42,9 | 31734 | 5121 | 3535 | 159 | 953 |
|        | 1732           | 2. | 15. | 58. | 10,0 | 34770 | 5127 | 2697 | 343 | 788 |
|        | 1733           | 3. | 3.  | 37. | 37,1 | 01807 | 5133 | 1860 | 528 | 623 |
|        | 1734           | 3. | 15. | 17. | 4,2  | 04844 | 5140 | 1022 | 712 | 458 |
| B.     | 1735           | 4. | 2.  | 56. | 31,3 | 07880 | 5146 | 0184 | 897 | 293 |
|        | 1736           | 3. | 14. | 35. | 58,4 | 10917 | 5152 | 9346 | 082 | 129 |
|        | 1737           | 4. | 2.  | 15. | 25,6 | 13954 | 5158 | 8509 | 266 | 964 |
|        | 1738           | 4. | 13. | 54. | 52,7 | 16990 | 5164 | 7672 | 451 | 799 |
|        | 1739           | 5. | 1.  | 34. | 19,8 | 20027 | 5171 | 6835 | 635 | 634 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | D   | E   | F   | G   | H    | I    | K    | L    |
|---------|-----|-----|-----|-----|------|------|------|------|
| 1700    | 794 | 878 | 295 | 196 | 9094 | 8953 | 9366 | 8303 |
| 1701    | 871 | 960 | 053 | 948 | 9939 | 9817 | 0285 | 9482 |
| 1702    | 947 | 042 | 811 | 701 | 0783 | 0680 | 1203 | 0660 |
| B. 1703 | 024 | 125 | 570 | 454 | 1628 | 1543 | 2122 | 1839 |
| 1704    | 101 | 208 | 328 | 206 | 2473 | 2408 | 3041 | 3018 |
| 1705    | 178 | 290 | 086 | 959 | 3318 | 3271 | 3960 | 4197 |
| 1706    | 255 | 372 | 845 | 712 | 4160 | 4132 | 4876 | 5373 |
| 1707    | 331 | 455 | 603 | 465 | 5003 | 4994 | 5792 | 6550 |
| B. 1708 | 408 | 537 | 362 | 217 | 5846 | 5855 | 6709 | 7726 |
| 1709    | 485 | 620 | 120 | 970 | 6689 | 6717 | 7626 | 8904 |
| 1710    | 562 | 702 | 878 | 723 | 7532 | 7579 | 8542 | 0080 |
| 1711    | 639 | 784 | 637 | 476 | 8375 | 8441 | 9460 | 1258 |
| B. 1712 | 715 | 867 | 395 | 228 | 9220 | 9304 | 0380 | 2436 |
| 1713    | 792 | 949 | 153 | 981 | 0064 | 0168 | 1297 | 3615 |
| 1714    | 869 | 032 | 912 | 734 | 0910 | 1031 | 2215 | 4793 |
| 1715    | 946 | 114 | 670 | 487 | 1754 | 1895 | 3135 | 5973 |
| B. 1716 | 023 | 197 | 428 | 239 | 2598 | 2758 | 4052 | 7150 |
| 1717    | 100 | 279 | 186 | 992 | 3442 | 3620 | 4969 | 8328 |
| 1718    | 176 | 361 | 945 | 745 | 4284 | 4481 | 5886 | 9504 |
| 1719    | 251 | 442 | 688 | 483 | 5110 | 5326 | 6784 | 0658 |
| B. 1720 | 330 | 526 | 462 | 250 | 5969 | 6204 | 7719 | 1857 |
| 1721    | 405 | 607 | 205 | 988 | 6795 | 7049 | 8617 | 3011 |
| 1722    | 482 | 689 | 964 | 741 | 7640 | 7912 | 9536 | 4189 |
| 1723    | 559 | 772 | 722 | 494 | 8483 | 8774 | 0453 | 5367 |
| B. 1724 | 636 | 854 | 480 | 246 | 9329 | 9638 | 1371 | 6546 |
| 1725    | 712 | 937 | 239 | 999 | 0172 | 0502 | 2290 | 7724 |
| 1726    | 789 | 019 | 997 | 752 | 1017 | 1362 | 3206 | 8902 |
| 1727    | 866 | 102 | 755 | 505 | 1860 | 2226 | 4125 | 0079 |
| B. 1728 | 943 | 184 | 514 | 257 | 2702 | 3087 | 5041 | 1255 |
| 1729    | 019 | 266 | 272 | 010 | 3546 | 3949 | 5958 | 2433 |
| 1730    | 096 | 348 | 030 | 763 | 4388 | 4811 | 6875 | 3609 |
| 1731    | 173 | 431 | 789 | 516 | 5232 | 5673 | 7792 | 4787 |
| B. 1732 | 250 | 513 | 547 | 268 | 6075 | 6535 | 8710 | 5964 |
| 1733    | 326 | 595 | 305 | 021 | 6919 | 7398 | 9627 | 7142 |
| 1734    | 403 | 678 | 034 | 774 | 7763 | 8261 | 0545 | 8320 |
| 1735    | 480 | 760 | 822 | 526 | 8607 | 9124 | 1463 | 9498 |
| B. 1736 | 557 | 843 | 580 | 279 | 9452 | 9987 | 2381 | 0676 |
| 1737    | 634 | 925 | 339 | 032 | 0295 | 0849 | 3299 | 1854 |
| 1738    | 710 | 008 | 097 | 785 | 1139 | 1711 | 4216 | 3031 |
| 1739    | 787 | 090 | 855 | 537 | 1981 | 2573 | 5133 | 4208 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | c   | C   |
|---------|----------------|-----|-----|------|-------|------|------|-----|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |     |     |
| B. 1740 | 4.             | 13. | 13. | 46,9 | 23065 | 5177 | 5998 | 820 | 469 |
| 1741    | 5.             | 0.  | 53. | 14,0 | 26100 | 5183 | 5161 | 005 | 304 |
| 1742    | 5.             | 12. | 32. | 41,1 | 29138 | 5189 | 4323 | 189 | 140 |
| 1743    | 6.             | 0.  | 12. | 8,2  | 32175 | 5195 | 3486 | 374 | 975 |
| B. 1744 | 5.             | 11. | 51. | 35,4 | 35211 | 5201 | 2649 | 558 | 810 |
| 1745    | 5.             | 23. | 31. | 2,5  | 02248 | 5208 | 1812 | 743 | 645 |
| 1746    | 6.             | 11. | 10. | 29,6 | 05285 | 5214 | 0976 | 927 | 480 |
| 1747    | 6.             | 22. | 49. | 56,7 | 08321 | 5220 | 0140 | 112 | 315 |
| B. 1748 | 6.             | 10. | 29. | 23,8 | 11358 | 5226 | 9304 | 297 | 150 |
| 1749    | 6.             | 22. | 8.  | 50,9 | 14395 | 5232 | 8466 | 481 | 985 |
| 1750    | 0.             | 5.  | 48. | 42,2 | 17372 | 5042 | 7449 | 094 | 804 |
| 1751    | 0.             | 17. | 28. | 9,3  | 20409 | 5049 | 6610 | 278 | 639 |
| B. 1752 | 0.             | 5.  | 7.  | 36,4 | 23446 | 5055 | 5772 | 463 | 474 |
| 1753    | 0.             | 16. | 47. | 3,6  | 26482 | 5061 | 4933 | 647 | 310 |
| 1754    | 1.             | 4.  | 26. | 30,7 | 29519 | 5067 | 4094 | 832 | 145 |
| 1755    | 1.             | 16. | 5.  | 57,8 | 32556 | 5073 | 3257 | 016 | 980 |
| B. 1756 | 1.             | 3.  | 45. | 24,9 | 35592 | 5080 | 2421 | 201 | 815 |
| 1757    | 1.             | 15. | 24. | 52,0 | 02629 | 5086 | 1584 | 386 | 650 |
| 1758    | 2.             | 3.  | 4.  | 19,1 | 05666 | 5092 | 0749 | 570 | 485 |
| 1759    | 2.             | 14. | 43. | 46,2 | 08703 | 5098 | 9913 | 755 | 320 |
| B. 1760 | 2.             | 2.  | 23. | 13,3 | 11740 | 5104 | 9077 | 939 | 155 |
| 1761    | 2.             | 14. | 2.  | 40,5 | 14776 | 5110 | 8238 | 124 | 990 |
| 1762    | 3.             | 1.  | 42. | 7,6  | 17813 | 5117 | 7400 | 309 | 826 |
| 1763    | 3.             | 13. | 21. | 34,7 | 20850 | 5123 | 6561 | 493 | 661 |
| B. 1764 | 3.             | 1.  | 1.  | 1,8  | 23886 | 5129 | 5721 | 678 | 496 |
| 1765    | 3.             | 12. | 40. | 28,9 | 26923 | 5135 | 4884 | 862 | 331 |
| 1766    | 4.             | 0.  | 19. | 56,0 | 29960 | 5141 | 4048 | 047 | 166 |
| 1767    | 4.             | 11. | 59. | 23,1 | 32996 | 5148 | 3211 | 231 | 001 |
| B. 1768 | 3.             | 23. | 38. | 50,2 | 00033 | 5154 | 2375 | 416 | 836 |
| 1769    | 4.             | 11. | 18. | 17,4 | 03070 | 5160 | 1539 | 600 | 671 |
| 1770    | 4.             | 22. | 57. | 44,5 | 06107 | 5166 | 0702 | 785 | 506 |
| 1771    | 5.             | 10. | 37. | 11,6 | 09143 | 5172 | 9864 | 970 | 342 |
| B. 1772 | 4.             | 22. | 16. | 38,7 | 12180 | 5179 | 9026 | 154 | 177 |
| 1773    | 5.             | 9.  | 56. | 5,8  | 15217 | 5185 | 8188 | 339 | 012 |
| 1774    | 5.             | 21. | 35. | 32,9 | 18254 | 5191 | 7348 | 521 | 847 |
| 1775    | 6.             | 9.  | 15. | 0,0  | 21290 | 5197 | 6510 | 708 | 683 |
| B. 1776 | 5.             | 20. | 54. | 27,2 | 24327 | 5203 | 5673 | 893 | 518 |
| 1777    | 6.             | 8.  | 33. | 54,3 | 27363 | 5209 | 4837 | 077 | 353 |
| 1778    | 6.             | 20. | 13. | 21,4 | 30400 | 5216 | 3999 | 262 | 188 |
| 1779    | 0.             | 3.  | 53. | 12,7 | 33377 | 5026 | 2984 | 873 | 001 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

|    | YEARS. | D   | E   | F   | G   | H    | I    | K    | L    |
|----|--------|-----|-----|-----|-----|------|------|------|------|
| B. | 1740   | 864 | 172 | 614 | 290 | 2825 | 3435 | 6050 | 5385 |
|    | 1741   | 941 | 255 | 372 | 043 | 3668 | 4297 | 6967 | 6563 |
|    | 1742   | 018 | 337 | 131 | 796 | 4512 | 5160 | 7885 | 7740 |
|    | 1743   | 094 | 420 | 889 | 548 | 5355 | 6022 | 8802 | 8918 |
|    | 1744   | 171 | 502 | 647 | 301 | 6199 | 6884 | 9720 | 0095 |
|    | 1745   | 248 | 584 | 406 | 054 | 7042 | 7746 | 0636 | 1272 |
|    | 1746   | 325 | 667 | 164 | 807 | 7884 | 8607 | 1552 | 2448 |
|    | 1747   | 401 | 749 | 922 | 559 | 8727 | 9468 | 2469 | 3625 |
| B. | 1748   | 478 | 831 | 681 | 312 | 9569 | 0330 | 3385 | 4801 |
|    | 1749   | 555 | 913 | 439 | 065 | 0413 | 1192 | 4303 | 5979 |
|    | 1750   | 630 | 994 | 182 | 803 | 1240 | 2038 | 5202 | 7133 |
|    | 1751   | 707 | 077 | 941 | 555 | 2085 | 2902 | 6122 | 8313 |
| B. | 1752   | 784 | 159 | 699 | 308 | 2930 | 3765 | 7040 | 9491 |
|    | 1753   | 861 | 242 | 457 | 061 | 3775 | 4630 | 7959 | 0671 |
|    | 1754   | 938 | 324 | 216 | 814 | 4620 | 5493 | 8878 | 1849 |
|    | 1755   | 014 | 407 | 974 | 566 | 5464 | 6355 | 9795 | 3027 |
| B. | 1756   | 091 | 489 | 733 | 319 | 6306 | 7216 | 0710 | 4203 |
|    | 1757   | 168 | 571 | 491 | 072 | 7149 | 8078 | 1628 | 5380 |
|    | 1758   | 244 | 654 | 249 | 825 | 7990 | 8938 | 2543 | 6555 |
|    | 1759   | 321 | 736 | 008 | 578 | 8833 | 9800 | 3460 | 7732 |
| B. | 1760   | 398 | 818 | 766 | 330 | 9675 | 0662 | 4376 | 8908 |
|    | 1761   | 475 | 901 | 524 | 083 | 0520 | 1524 | 5295 | 0087 |
|    | 1762   | 551 | 983 | 283 | 836 | 1364 | 2388 | 6213 | 1265 |
|    | 1763   | 628 | 066 | 041 | 588 | 2210 | 3252 | 7132 | 2445 |
| B. | 1764   | 705 | 148 | 799 | 341 | 3056 | 4116 | 8052 | 3624 |
|    | 1765   | 782 | 231 | 558 | 094 | 3899 | 4979 | 8969 | 4802 |
|    | 1766   | 859 | 313 | 316 | 846 | 4742 | 5840 | 9888 | 5978 |
|    | 1767   | 936 | 395 | 074 | 599 | 5584 | 6702 | 0802 | 7155 |
| B. | 1768   | 012 | 478 | 833 | 352 | 6427 | 7563 | 1719 | 8331 |
|    | 1769   | 089 | 560 | 591 | 105 | 7269 | 8424 | 2635 | 9508 |
|    | 1770   | 166 | 642 | 349 | 857 | 8113 | 9287 | 3552 | 0685 |
|    | 1771   | 324 | 725 | 108 | 610 | 8956 | 0149 | 4470 | 1863 |
| B. | 1772   | 319 | 807 | 866 | 363 | 9801 | 1012 | 5390 | 3041 |
|    | 1773   | 396 | 890 | 624 | 116 | 0646 | 1874 | 6306 | 4219 |
|    | 1774   | 473 | 972 | 383 | 868 | 1491 | 2740 | 7226 | 5399 |
|    | 1775   | 550 | 055 | 141 | 621 | 2336 | 3603 | 8144 | 6578 |
| B. | 1776   | 627 | 137 | 900 | 373 | 3179 | 4465 | 9062 | 7755 |
|    | 1777   | 703 | 220 | 658 | 127 | 4022 | 5327 | 9978 | 8932 |
|    | 1778   | 780 | 302 | 416 | 879 | 4865 | 6189 | 0896 | 0109 |
|    | 1779   | 857 | 384 | 160 | 617 | 5690 | 7033 | 1793 | 1262 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | c   | C   |
|---------|----------------|-----|-----|------|-------|------|------|-----|-----|
|         | D.             | H.  | M.  | S.   |       |      |      |     |     |
| B. 1780 | 6.             | 19. | 32. | 15,6 | 00473 | 5228 | 2327 | 631 | 858 |
| 1781    | 0.             | 3.  | 12. | 6,9  | 03451 | 5038 | 1309 | 243 | 677 |
| 1782    | 0.             | 14. | 51. | 34,0 | 06488 | 5044 | 0471 | 428 | 512 |
| 1783    | 1.             | 2.  | 31. | 1,1  | 09524 | 5050 | 9634 | 613 | 347 |
| B. 1784 | 0.             | 14. | 10. | 28,2 | 12561 | 5057 | 8796 | 797 | 182 |
| 1785    | 1.             | 1.  | 49. | 55,3 | 15597 | 5063 | 7959 | 982 | 017 |
| 1786    | 1.             | 13. | 29. | 22,5 | 18634 | 5069 | 7121 | 166 | 853 |
| 1787    | 2.             | 1.  | 8.  | 49,6 | 21671 | 5075 | 6284 | 351 | 688 |
| B. 1788 | 1.             | 12. | 48. | 16,7 | 24707 | 5081 | 5448 | 535 | 523 |
| 1789    | 2.             | 0.  | 27. | 43,8 | 27744 | 5088 | 4610 | 720 | 358 |
| 1790    | 2.             | 12. | 7.  | 10,9 | 30781 | 5094 | 3774 | 905 | 193 |
| 1791    | 2.             | 23. | 46. | 38,0 | 33818 | 5100 | 2937 | 089 | 028 |
| B. 1792 | 2.             | 11. | 26. | 5,1  | 00854 | 5106 | 2100 | 274 | 863 |
| 1793    | 2.             | 23. | 5.  | 32,3 | 03891 | 5112 | 1262 | 458 | 698 |
| 1794    | 3.             | 10. | 44. | 59,4 | 06927 | 5118 | 0424 | 643 | 534 |
| 1795    | 3.             | 22. | 24. | 26,5 | 09965 | 5125 | 9587 | 828 | 369 |
| B. 1796 | 3.             | 10. | 3.  | 53,6 | 13001 | 5131 | 8749 | 012 | 204 |
| 1797    | 3.             | 21. | 43. | 20,7 | 16038 | 5137 | 7912 | 197 | 039 |
| 1798    | 4.             | 9.  | 22. | 47,8 | 19075 | 5143 | 7075 | 381 | 874 |
| 1799    | 4.             | 21. | 2.  | 14,9 | 22111 | 5149 | 6237 | 566 | 709 |
| 1800    | 5.             | 8.  | 41. | 42,0 | 25148 | 5156 | 5400 | 751 | 544 |
| 1801    | 5.             | 20. | 21. | 9,2  | 28184 | 5162 | 4563 | 935 | 379 |
| 1802    | 6.             | 8.  | 0.  | 36,3 | 31221 | 5168 | 3726 | 120 | 214 |
| 1803    | 6.             | 19. | 40. | 3,4  | 34258 | 5174 | 2888 | 304 | 050 |
| B. 1804 | 6.             | 7.  | 19. | 30,5 | 01295 | 5180 | 2051 | 489 | 885 |
| 1805    | 6.             | 18. | 58. | 57,6 | 04334 | 5186 | 1215 | 673 | 720 |
| 1806    | 0.             | 2.  | 38. | 48,9 | 07308 | 4996 | 0200 | 286 | 539 |
| 1807    | 0.             | 14. | 18. | 16,0 | 10345 | 5003 | 9363 | 470 | 374 |
| B. 1808 | 0.             | 1.  | 57. | 43,1 | 13381 | 5009 | 8527 | 655 | 209 |
| 1809    | 0.             | 13. | 37. | 10,2 | 16418 | 5015 | 7690 | 840 | 044 |
| 1810    | 1.             | 1.  | 16. | 37,4 | 19454 | 5021 | 6852 | 024 | 879 |
| 1811    | 1.             | 12. | 56. | 4,5  | 22491 | 5027 | 6012 | 209 | 714 |
| B. 1812 | 1.             | 0.  | 35. | 31,6 | 25528 | 5034 | 5173 | 393 | 549 |
| 1813    | 1.             | 12. | 14. | 58,7 | 28564 | 5040 | 4335 | 578 | 385 |
| 1814    | 1.             | 23. | 54. | 25,8 | 31601 | 5046 | 3496 | 762 | 220 |
| 1815    | 2.             | 11. | 33. | 52,9 | 34638 | 5052 | 2660 | 947 | 055 |
| B. 1816 | 1.             | 23. | 13. | 20,0 | 01674 | 5058 | 1824 | 132 | 890 |
| 1817    | 2.             | 10. | 52. | 47,1 | 04711 | 5065 | 0988 | 316 | 725 |
| 1818    | 2.             | 22. | 32. | 14,3 | 07748 | 5071 | 0152 | 501 | 560 |
| 1819    | 3.             | 10. | 11. | 41,4 | 10785 | 5077 | 9316 | 685 | 396 |
| B. 1820 | 2.             | 21. | 51. | 8,5  | 13821 | 5083 | 8481 | 870 | 230 |



TABLE XXVII. *Epochs of the mean Conjunctions of the third Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | D   | E   | F   | G   | H    | I    | K    | L    |
|---------|-----|-----|-----|-----|------|------|------|------|
| B. 1780 | 933 | 467 | 933 | 385 | 6550 | 7912 | 2728 | 2462 |
| 1781    | 009 | 547 | 676 | 123 | 7376 | 8756 | 3627 | 3616 |
| 1782    | 086 | 629 | 435 | 875 | 8221 | 9620 | 4545 | 4792 |
| 1783    | 193 | 712 | 193 | 628 | 9066 | 0483 | 5464 | 5973 |
| B. 1784 | 239 | 795 | 951 | 381 | 9909 | 1345 | 6381 | 7150 |
| 1785    | 316 | 877 | 710 | 134 | 0754 | 2210 | 7300 | 8329 |
| 1786    | 393 | 959 | 468 | 886 | 1597 | 3071 | 8217 | 9506 |
| 1787    | 470 | 042 | 227 | 639 | 2441 | 3933 | 9134 | 0684 |
| B. 1788 | 546 | 124 | 985 | 392 | 3283 | 4795 | 0051 | 1860 |
| 1789    | 623 | 207 | 743 | 145 | 4127 | 5657 | 0968 | 3038 |
| 1790    | 700 | 289 | 502 | 897 | 4969 | 6518 | 1883 | 4214 |
| 1791    | 777 | 371 | 260 | 650 | 5813 | 7381 | 2802 | 5392 |
| B. 1792 | 854 | 454 | 018 | 403 | 6657 | 8243 | 3719 | 6569 |
| 1793    | 930 | 536 | 777 | 156 | 7500 | 9105 | 4637 | 7747 |
| 1794    | 007 | 619 | 535 | 908 | 8345 | 9969 | 5555 | 8923 |
| 1795    | 084 | 701 | 293 | 661 | 9188 | 0831 | 6473 | 0101 |
| B. 1796 | 161 | 783 | 052 | 414 | 0032 | 1693 | 7390 | 1280 |
| 1797    | 238 | 866 | 810 | 167 | 0875 | 2556 | 8308 | 2458 |
| 1798    | 314 | 948 | 568 | 919 | 1719 | 3418 | 9225 | 3636 |
| 1799    | 391 | 030 | 327 | 672 | 2562 | 4280 | 0142 | 4813 |
| 1800    | 468 | 113 | 085 | 425 | 3406 | 5143 | 1060 | 5989 |
| 1801    | 545 | 195 | 843 | 177 | 4250 | 6006 | 1977 | 7168 |
| 1802    | 621 | 278 | 602 | 930 | 5093 | 6868 | 2894 | 8346 |
| 1803    | 698 | 360 | 360 | 683 | 5937 | 7730 | 3812 | 9523 |
| B. 1804 | 775 | 442 | 118 | 436 | 6780 | 8592 | 4729 | 0701 |
| 1805    | 852 | 525 | 877 | 188 | 7623 | 9454 | 5646 | 1877 |
| 1806    | 927 | 605 | 620 | 926 | 8448 | 0297 | 6543 | 3030 |
| 1807    | 004 | 688 | 379 | 679 | 9290 | 1158 | 7460 | 4206 |
| B. 1808 | 080 | 770 | 137 | 432 | 0133 | 2020 | 8376 | 5382 |
| 1809    | 157 | 852 | 895 | 185 | 0977 | 2882 | 9293 | 6560 |
| 1810    | 234 | 935 | 654 | 937 | 1821 | 3745 | 0212 | 7738 |
| 1811    | 311 | 017 | 412 | 690 | 2667 | 4610 | 1131 | 8918 |
| B. 1812 | 388 | 100 | 170 | 443 | 3512 | 5474 | 2051 | 0097 |
| 1813    | 464 | 183 | 929 | 195 | 4357 | 6337 | 2969 | 1276 |
| 1814    | 541 | 265 | 687 | 948 | 5201 | 7202 | 3888 | 2455 |
| 1815    | 618 | 347 | 445 | 701 | 6042 | 8062 | 4804 | 3631 |
| B. 1816 | 695 | 430 | 204 | 454 | 6886 | 8923 | 5720 | 4807 |
| 1817    | 772 | 512 | 962 | 206 | 7729 | 9785 | 6637 | 5984 |
| 1818    | 848 | 594 | 720 | 959 | 8570 | 0645 | 7552 | 7160 |
| 1819    | 925 | 676 | 479 | 712 | 9411 | 1505 | 8468 | 8335 |
| B. 1820 | 001 | 759 | 237 | 465 | 0254 | 2367 | 9384 | 9512 |



## THIRD SATELLITE OF JUPITER.

TABLE XXVIII. Revolutions of the third Satellite for Months.

| MONTHS.    | Change of the<br>Mean Conjunction. |     |     |      | A    | S    | B    | c   | C   |
|------------|------------------------------------|-----|-----|------|------|------|------|-----|-----|
|            | D.                                 | H.  | M.  | S.   |      |      |      |     |     |
| January.   | 7.                                 | 3.  | 59. | 35,8 | 60   | 196  | 180  | 572 | 016 |
|            | 14.                                | 7.  | 59. | 11,7 | 119  | 392  | 359  | 144 | 033 |
|            | 21.                                | 11. | 58. | 47,5 | 179  | 589  | 539  | 717 | 049 |
| January.   | 28.                                | 15. | 58. | 23,3 | 238  | 785  | 719  | 289 | 066 |
| February.  | 4.                                 | 19. | 57. | 59,2 | 298  | 981  | 898  | 861 | 082 |
|            | 11.                                | 23. | 57. | 35,0 | 357  | 1177 | 1078 | 433 | 098 |
|            | 19.                                | 3.  | 57. | 10,8 | 417  | 1373 | 1258 | 006 | 115 |
| February.  | 26.                                | 7.  | 56. | 46,7 | 476  | 1570 | 1437 | 578 | 131 |
| March.     | 5.                                 | 11. | 56. | 22,4 | 536  | 1766 | 1617 | 150 | 147 |
|            | 12.                                | 15. | 55. | 58,2 | 595  | 1962 | 1797 | 722 | 164 |
|            | 19.                                | 19. | 55. | 34,1 | 655  | 2158 | 1976 | 295 | 180 |
| March.     | 26.                                | 23. | 55. | 9,9  | 715  | 2354 | 2156 | 867 | 197 |
| April.     | 3.                                 | 3.  | 54. | 45,7 | 774  | 2551 | 2336 | 439 | 213 |
|            | 10.                                | 7.  | 54. | 21,6 | 834  | 2747 | 2515 | 011 | 229 |
|            | 17.                                | 11. | 53. | 57,4 | 893  | 2943 | 2695 | 584 | 246 |
| April.     | 24.                                | 15. | 53. | 33,2 | 953  | 3139 | 2875 | 156 | 262 |
| May.       | 1.                                 | 19. | 53. | 9,1  | 1012 | 3335 | 3054 | 728 | 278 |
|            | 8.                                 | 23. | 52. | 44,9 | 1072 | 3532 | 3234 | 300 | 295 |
|            | 16.                                | 3.  | 52. | 20,7 | 1131 | 3728 | 3414 | 873 | 311 |
|            | 23.                                | 7.  | 51. | 56,5 | 1191 | 3924 | 3593 | 445 | 328 |
| May.       | 30.                                | 11. | 51. | 32,4 | 1250 | 4120 | 3773 | 017 | 344 |
| June.      | 6.                                 | 15. | 51. | 8,2  | 1310 | 4316 | 3953 | 589 | 360 |
|            | 13.                                | 19. | 50. | 44,0 | 1369 | 4513 | 4132 | 162 | 377 |
|            | 20.                                | 23. | 50. | 19,9 | 1429 | 4709 | 4312 | 734 | 393 |
| June.      | 28.                                | 3.  | 49. | 55,7 | 1489 | 4905 | 4492 | 306 | 409 |
| July.      | 5.                                 | 7.  | 49. | 31,4 | 1548 | 5101 | 4671 | 878 | 426 |
|            | 12.                                | 11. | 49. | 7,3  | 1608 | 5297 | 4851 | 451 | 442 |
|            | 19.                                | 15. | 48. | 43,1 | 1667 | 5494 | 5031 | 023 | 459 |
| July.      | 26.                                | 19. | 48. | 18,9 | 1727 | 5690 | 5210 | 595 | 475 |
| August.    | 2.                                 | 23. | 47. | 54,8 | 1786 | 5886 | 5390 | 167 | 491 |
|            | 10.                                | 3.  | 47. | 30,6 | 1846 | 6082 | 5569 | 740 | 508 |
|            | 17.                                | 7.  | 47. | 6,4  | 1905 | 6278 | 5749 | 312 | 524 |
| August.    | 24.                                | 11. | 46. | 42,3 | 1965 | 6475 | 5929 | 884 | 540 |
| September. | 31.                                | 15. | 46. | 18,1 | 2024 | 6671 | 6108 | 456 | 557 |
|            | 7.                                 | 19. | 45. | 53,9 | 2084 | 6867 | 6288 | 029 | 573 |
| September  | 14.                                | 23. | 45. | 29,8 | 2144 | 7063 | 6468 | 601 | 590 |
|            | 22.                                | 3.  | 45. | 5,6  | 2203 | 7259 | 6647 | 173 | 606 |
|            | 29.                                | 7.  | 44. | 41,4 | 2263 | 7456 | 6827 | 745 | 622 |



TABLE XXVIII. Revolutions of the third Satellite for Months.

| MONTHS.               | Change<br>&c. | D  | E  | F   | G   | H   | I   | K   | L   |
|-----------------------|---------------|----|----|-----|-----|-----|-----|-----|-----|
|                       | D.            |    |    |     |     |     |     |     |     |
| January.              | 7             | 2  | 2  | 15  | 15  | 17  | 17  | 18  | 23  |
|                       | 14            | 3  | 3  | 30  | 30  | 33  | 34  | 36  | 46  |
|                       | 21            | 5  | 5  | 45  | 44  | 50  | 51  | 54  | 69  |
| January.              | 28            | 6  | 6  | 59  | 59  | 66  | 68  | 72  | 92  |
|                       |               |    |    |     |     |     |     |     |     |
| February.             | 4             | 8  | 8  | 74  | 74  | 83  | 85  | 90  | 115 |
|                       | 11            | 9  | 10 | 89  | 89  | 99  | 101 | 108 | 139 |
|                       | 19            | 11 | 11 | 104 | 103 | 116 | 118 | 126 | 162 |
| February.             | 26            | 12 | 13 | 119 | 118 | 132 | 135 | 144 | 185 |
|                       |               |    |    |     |     |     |     |     |     |
| March.                | 5             | 14 | 15 | 134 | 133 | 149 | 152 | 162 | 208 |
|                       | 12            | 15 | 16 | 149 | 148 | 165 | 169 | 180 | 231 |
|                       | 19            | 17 | 18 | 164 | 162 | 182 | 186 | 198 | 254 |
| March.                | 26            | 18 | 19 | 178 | 177 | 198 | 203 | 216 | 277 |
|                       |               |    |    |     |     |     |     |     |     |
| April.                | 3             | 20 | 21 | 193 | 192 | 215 | 220 | 234 | 300 |
|                       | 10            | 21 | 23 | 208 | 207 | 232 | 237 | 252 | 323 |
|                       | 17            | 23 | 24 | 223 | 221 | 248 | 254 | 270 | 346 |
| April.                | 24            | 24 | 26 | 238 | 236 | 265 | 271 | 288 | 369 |
|                       |               |    |    |     |     |     |     |     |     |
| May.                  | 1             | 26 | 27 | 253 | 251 | 281 | 287 | 306 | 393 |
|                       | 8             | 27 | 29 | 268 | 266 | 298 | 304 | 324 | 416 |
|                       | 16            | 29 | 31 | 283 | 280 | 314 | 321 | 342 | 439 |
|                       | 23            | 30 | 32 | 297 | 295 | 331 | 338 | 360 | 462 |
| May.<br>June.         | 30            | 32 | 34 | 312 | 310 | 348 | 355 | 378 | 485 |
|                       | 6             | 33 | 36 | 327 | 325 | 364 | 372 | 396 | 508 |
|                       | 13            | 35 | 37 | 342 | 339 | 380 | 389 | 414 | 531 |
|                       | 20            | 36 | 39 | 357 | 354 | 397 | 406 | 432 | 554 |
| June.<br>July.        | 28            | 38 | 40 | 372 | 369 | 413 | 423 | 450 | 577 |
|                       | 5             | 39 | 42 | 387 | 384 | 430 | 440 | 468 | 600 |
|                       | 12            | 41 | 44 | 401 | 399 | 447 | 457 | 486 | 623 |
|                       | 19            | 42 | 45 | 416 | 413 | 463 | 473 | 504 | 646 |
| July.<br>August.      | 26            | 44 | 47 | 431 | 428 | 480 | 490 | 522 | 670 |
|                       | 2             | 45 | 48 | 446 | 443 | 496 | 507 | 540 | 693 |
|                       | 10            | 47 | 50 | 461 | 458 | 513 | 524 | 558 | 716 |
|                       | 17            | 48 | 52 | 476 | 472 | 529 | 541 | 576 | 739 |
| August.<br>September. | 24            | 50 | 53 | 491 | 487 | 546 | 558 | 594 | 762 |
|                       | 31            | 51 | 55 | 506 | 502 | 562 | 575 | 612 | 785 |
|                       | 7             | 53 | 57 | 520 | 517 | 579 | 592 | 630 | 808 |
| September.            | 14            | 54 | 58 | 535 | 531 | 595 | 609 | 648 | 831 |
|                       | 22            | 56 | 60 | 550 | 546 | 612 | 626 | 666 | 854 |
|                       | 29            | 57 | 61 | 565 | 561 | 629 | 643 | 684 | 877 |



TABLE XXVIII. Revolutions of the third Satellite for Months.

| MONTHS.                | Change of the Mean Conjunction. |     |     |      | A    | S    | B    | c   | C   |
|------------------------|---------------------------------|-----|-----|------|------|------|------|-----|-----|
|                        | D.                              | H.  | M.  | S.   |      |      |      |     |     |
| October.               | 6.                              | 11. | 44. | 17,3 | 2322 | 7652 | 7007 | 318 | 639 |
|                        | 13.                             | 15. | 43. | 53,1 | 2382 | 7848 | 7186 | 890 | 655 |
|                        | 20.                             | 19. | 43. | 28,9 | 2441 | 8044 | 7366 | 462 | 671 |
| October.<br>November.  | 27.                             | 23. | 43. | 4,8  | 2501 | 8240 | 7546 | 034 | 688 |
|                        | 4.                              | 3.  | 42. | 40,6 | 2560 | 8437 | 7725 | 607 | 704 |
|                        | 11.                             | 7.  | 42. | 16,4 | 2620 | 8633 | 7905 | 179 | 721 |
| November.<br>December. | 18.                             | 11. | 41. | 52,2 | 2679 | 8829 | 8085 | 751 | 737 |
|                        | 25.                             | 15. | 41. | 28,0 | 2739 | 9025 | 8264 | 323 | 753 |
|                        | 2.                              | 19. | 41. | 3,8  | 2799 | 9221 | 8444 | 896 | 770 |
| December.              | 9.                              | 23. | 40. | 39,7 | 2858 | 9418 | 8624 | 468 | 786 |
|                        | 17.                             | 3.  | 40. | 15,5 | 2918 | 9614 | 8803 | 040 | 802 |
|                        | 24.                             | 7.  | 39. | 51,3 | 2977 | 9810 | 8983 | 612 | 819 |
|                        | 31.                             | 11. | 39. | 27,2 | 3037 | 0006 | 9163 | 185 | 835 |

| MONTHS.                | Change &c.<br>D. | D  | E  | F   | G   | H   | I   | K   | L    |
|------------------------|------------------|----|----|-----|-----|-----|-----|-----|------|
|                        |                  |    |    |     |     |     |     |     |      |
| October.               | 6                | 59 | 63 | 580 | 576 | 645 | 659 | 702 | 900  |
|                        | 13               | 60 | 65 | 595 | 590 | 662 | 676 | 720 | 924  |
|                        | 20               | 62 | 66 | 610 | 605 | 678 | 693 | 738 | 947  |
| October.<br>November.  | 27               | 63 | 68 | 625 | 620 | 695 | 710 | 756 | 970  |
|                        | 4                | 65 | 69 | 639 | 635 | 711 | 727 | 774 | 993  |
|                        | 11               | 66 | 71 | 654 | 649 | 728 | 744 | 791 | 1016 |
| November.<br>December. | 18               | 68 | 73 | 669 | 664 | 744 | 761 | 809 | 1039 |
|                        | 25               | 69 | 74 | 684 | 679 | 761 | 778 | 827 | 1062 |
|                        | 2                | 71 | 76 | 699 | 694 | 777 | 795 | 845 | 1085 |
| December.              | 9                | 72 | 78 | 714 | 708 | 794 | 812 | 863 | 1108 |
|                        | 17               | 74 | 79 | 729 | 723 | 810 | 829 | 881 | 1131 |
|                        | 24               | 75 | 81 | 744 | 738 | 827 | 845 | 899 | 1154 |
|                        | 31               | 77 | 82 | 758 | 753 | 844 | 862 | 917 | 1178 |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff.                                | YEARS.  | Equat. |      | Diff.                                | YEARS.  | Equat. |      | Diff.                           |
|---------|--------|------|--------------------------------------|---------|--------|------|--------------------------------------|---------|--------|------|---------------------------------|
|         | M.     | S.   |                                      |         | M.     | S.   |                                      |         | M.     | S.   |                                 |
| 1660, 0 | 11.    | 43,8 | 8,2<br>7,0<br>5,7<br>4,5<br>3,1      | 1668, 0 | 14.    | 2,4  | 14,8<br>13,1<br>13,9<br>14,1<br>14,1 | 1676, 0 | 14.    | 17,5 | 7,8<br>7,1<br>5,9<br>3,9<br>2,3 |
| 2       | 11.    | 35,6 |                                      | 2       | 13.    | 47,6 |                                      | 2       | 14.    | 25,3 |                                 |
| 4       | 11.    | 28,6 |                                      | 4       | 13.    | 34,5 |                                      | 4       | 14.    | 32,4 |                                 |
| 6       | 11.    | 22,9 |                                      | 6       | 13.    | 20,6 |                                      | 6       | 14.    | 38,3 |                                 |
| 8       | 11.    | 18,4 |                                      | 8       | 13.    | 6,5  |                                      | 8       | 14.    | 42,2 |                                 |
| 1661, 0 | 11.    | 15,3 | 1,0<br>0,9<br>2,0<br>3,9<br>5,5      | 1669, 0 | 12.    | 52,4 | 13,6<br>12,9<br>12,3<br>11,6<br>10,5 | 1677, 0 | 14.    | 44,5 | 0,9<br>0,2<br>1,2<br>2,4<br>3,6 |
| 2       | 11.    | 14,3 |                                      | 2       | 12.    | 38,8 |                                      | 2       | 14.    | 45,4 |                                 |
| 4       | 11.    | 15,2 |                                      | 4       | 12.    | 25,9 |                                      | 4       | 14.    | 45,6 |                                 |
| 6       | 11.    | 17,2 |                                      | 6       | 12.    | 13,6 |                                      | 6       | 14.    | 44,4 |                                 |
| 8       | 11.    | 21,1 |                                      | 8       | 12.    | 2,0  |                                      | 8       | 14.    | 42,0 |                                 |
| 1662, 0 | 11.    | 26,6 | 7,2<br>9,4<br>10,3<br>11,7<br>12,7   | 1670, 0 | 11.    | 51,5 | 9,3<br>7,8<br>7,2<br>5,8<br>4,7      | 1678, 0 | 14.    | 38,4 | 4,4<br>5,6<br>6,3<br>7,3<br>7,7 |
| 2       | 11.    | 33,8 |                                      | 2       | 11.    | 42,2 |                                      | 2       | 14.    | 34,0 |                                 |
| 4       | 11.    | 43,2 |                                      | 4       | 11.    | 34,4 |                                      | 4       | 14.    | 28,4 |                                 |
| 6       | 11.    | 53,5 |                                      | 6       | 11.    | 27,2 |                                      | 6       | 14.    | 22,1 |                                 |
| 8       | 12.    | 5,2  |                                      | 8       | 11.    | 21,4 |                                      | 8       | 14.    | 14,8 |                                 |
| 1663, 0 | 12.    | 17,9 | 13,4<br>14,4<br>15,0<br>15,6<br>15,7 | 1671, 0 | 11.    | 16,7 | 2,4<br>1,3<br>0,3<br>0,6<br>1,2      | 1679, 0 | 14.    | 7,1  | 8,1<br>8,5<br>7,9<br>7,4<br>7,6 |
| 2       | 12.    | 31,3 |                                      | 2       | 11.    | 14,3 |                                      | 2       | 13.    | 59,0 |                                 |
| 4       | 12.    | 45,7 |                                      | 4       | 11.    | 13,0 |                                      | 4       | 13.    | 50,5 |                                 |
| 6       | 13.    | 0,7  |                                      | 6       | 11.    | 12,7 |                                      | 6       | 13.    | 42,6 |                                 |
| 8       | 13.    | 16,3 |                                      | 8       | 11.    | 13,3 |                                      | 8       | 13.    | 35,2 |                                 |
| 1664, 0 | 13.    | 32,0 | 15,0<br>14,1<br>13,5<br>13,2<br>12,8 | 1672, 0 | 11.    | 14,5 | 3,3<br>4,6<br>6,0<br>5,7<br>6,9      | 1680, 0 | 13.    | 27,6 | 6,4<br>6,0<br>5,4<br>3,5<br>3,1 |
| 2       | 13.    | 47,0 |                                      | 2       | 11.    | 17,8 |                                      | 2       | 13.    | 21,2 |                                 |
| 4       | 14.    | 1,1  |                                      | 4       | 11.    | 22,4 |                                      | 4       | 13.    | 15,2 |                                 |
| 6       | 14.    | 14,6 |                                      | 6       | 11.    | 28,4 |                                      | 6       | 13.    | 9,8  |                                 |
| 8       | 14.    | 27,8 |                                      | 8       | 11.    | 34,1 |                                      | 8       | 13.    | 6,3  |                                 |
| 1665, 0 | 14.    | 40,6 | 10,7<br>8,7<br>5,9<br>4,6<br>2,7     | 1673, 0 | 11.    | 41,0 | 8,6<br>8,7<br>9,5<br>10,2<br>10,7    | 1681, 0 | 13.    | 3,2  | 1,8<br>1,7<br>0,1<br>0,7<br>1,6 |
| 2       | 14.    | 51,3 |                                      | 2       | 11.    | 49,6 |                                      | 2       | 13.    | 1,4  |                                 |
| 4       | 15.    | 0,0  |                                      | 4       | 11.    | 58,3 |                                      | 4       | 12.    | 59,7 |                                 |
| 6       | 15.    | 5,9  |                                      | 6       | 12.    | 7,8  |                                      | 6       | 12.    | 59,8 |                                 |
| 8       | 15.    | 10,5 |                                      | 8       | 12.    | 18,0 |                                      | 8       | 13.    | 0,5  |                                 |
| 1666, 0 | 15.    | 13,2 | 0,5<br>2,1<br>3,2<br>4,9<br>6,0      | 1674, 0 | 12.    | 28,7 | 11,1<br>11,4<br>11,9<br>12,1<br>11,0 | 1682, 0 | 13.    | 2,1  | 2,5<br>2,2<br>2,2<br>2,4<br>3,0 |
| 2       | 15.    | 13,7 |                                      | 2       | 12.    | 39,8 |                                      | 2       | 13.    | 4,6  |                                 |
| 4       | 15.    | 11,6 |                                      | 4       | 12.    | 51,2 |                                      | 4       | 13.    | 6,8  |                                 |
| 6       | 15.    | 8,4  |                                      | 6       | 13.    | 3,1  |                                      | 6       | 13.    | 9,0  |                                 |
| 8       | 15.    | 3,5  |                                      | 8       | 13.    | 15,2 |                                      | 8       | 13.    | 11,4 |                                 |
| 1667, 0 | 14.    | 57,5 | 8,2<br>9,8<br>11,2<br>12,5<br>13,4   | 1675, 0 | 13.    | 26,2 | 11,2<br>10,6<br>10,7<br>9,7<br>9,1   | 1683, 0 | 13.    | 14,4 | 3,2<br>1,9<br>1,1<br>0,0<br>1,4 |
| 2       | 14.    | 49,3 |                                      | 2       | 13.    | 37,4 |                                      | 2       | 13.    | 17,6 |                                 |
| 4       | 14.    | 39,5 |                                      | 4       | 13.    | 48,0 |                                      | 4       | 13.    | 19,5 |                                 |
| 6       | 14.    | 28,3 |                                      | 6       | 13.    | 58,7 |                                      | 6       | 13.    | 20,6 |                                 |
| 8       | 14.    | 15,8 |                                      | 8       | 14.    | 8,4  |                                      | 8       | 13.    | 20,6 |                                 |
| 1668, 0 | 14.    | 2,4  |                                      | 1676, 0 | 14.    | 17,5 |                                      | 1684, 0 | 13.    | 19,2 |                                 |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1684, 0 | 13.    | 19,2 |       |  | 1692, 0 | 12.    | 42,6 |       |  | 1700, 0 | 10.    | 52,4 |       |
| 2       | 13.    | 17,9 | 1,3   |  | 2       | 13.    | 3,0  | 20,4  |  | 2       | 10.    | 46,6 | 5,8   |
| 4       | 13.    | 15,6 | 2,3   |  | 4       | 13.    | 22,2 | 19,2  |  | 4       | 10.    | 43,3 | 3,3   |
| 6       | 13.    | 12,6 | 3,0   |  | 6       | 13.    | 42,7 | 20,5  |  | 6       | 10.    | 44,1 | 0,8   |
| 8       | 13.    | 8,4  | 4,2   |  | 8       | 14.    | 1,4  | 18,7  |  | 8       | 10.    | 47,2 | 3,1   |
|         |        |      | 6,3   |  |         |        |      | 17,9  |  |         |        |      | 5,2   |
| 1685, 0 | 13.    | 2,1  |       |  | 1693, 0 | 14.    | 19,3 |       |  | 1701, 0 | 10.    | 52,4 |       |
| 2       | 12.    | 54,6 | 7,5   |  | 2       | 14.    | 36,3 | 17,0  |  | 2       | 11.    | 0,7  | 8,3   |
| 4       | 12.    | 46,0 | 8,6   |  | 4       | 14.    | 52,3 | 16,0  |  | 4       | 11.    | 12,7 | 12,0  |
| 6       | 12.    | 36,9 | 9,1   |  | 6       | 15.    | 6,1  | 13,8  |  | 6       | 11.    | 25,2 | 12,5  |
| 8       | 12.    | 26,4 | 10,5  |  | 8       | 15.    | 19,0 | 12,9  |  | 8       | 11.    | 41,1 | 15,9  |
|         |        |      | 11,6  |  |         |        |      | 10,4  |  |         |        |      | 17,4  |
| 1686, 0 | 12.    | 14,8 |       |  | 1694, 0 | 15.    | 29,4 |       |  | 1702, 0 | 11.    | 58,5 |       |
| 2       | 12.    | 2,9  | 11,9  |  | 2       | 15.    | 37,5 | 8,1   |  | 2       | 12.    | 18,6 | 20,1  |
| 4       | 11.    | 50,5 | 12,4  |  | 4       | 15.    | 43,1 | 5,6   |  | 4       | 12.    | 39,2 | 20,6  |
| 6       | 11.    | 37,8 | 12,7  |  | 6       | 15.    | 46,5 | 3,4   |  | 6       | 13.    | 0,5  | 21,3  |
| 8       | 11.    | 24,6 | 13,2  |  | 8       | 15.    | 47,8 | 1,3   |  | 8       | 13.    | 22,2 | 21,7  |
|         |        |      | 13,7  |  |         |        |      | 0,7   |  |         |        |      | 21,5  |
| 1687, 0 | 11.    | 10,9 |       |  | 1695, 0 | 15.    | 47,1 |       |  | 1703, 0 | 13.    | 43,7 |       |
| 2       | 10.    | 57,8 | 13,1  |  | 2       | 15.    | 45,0 | 2,1   |  | 2       | 14.    | 5,8  | 22,1  |
| 4       | 10.    | 44,7 | 13,1  |  | 4       | 15.    | 40,7 | 4,3   |  | 4       | 14.    | 27,2 | 21,4  |
| 6       | 10.    | 32,5 | 12,2  |  | 6       | 15.    | 34,8 | 5,9   |  | 6       | 14.    | 46,5 | 19,3  |
| 8       | 10.    | 21,6 | 10,9  |  | 8       | 15.    | 27,7 | 7,1   |  | 8       | 15.    | 4,1  | 17,6  |
|         |        |      | 10,8  |  |         |        |      | 8,4   |  |         |        |      | 16,3  |
| 1688, 0 | 10.    | 10,8 |       |  | 1696, 0 | 15.    | 19,3 |       |  | 1704, 0 | 15.    | 20,4 |       |
| 2       | 10.    | 1,5  | 9,3   |  | 2       | 15.    | 10,1 | 9,2   |  | 2       | 15.    | 34,3 | 13,9  |
| 4       | 9.     | 53,4 | 8,1   |  | 4       | 14.    | 59,3 | 10,8  |  | 4       | 15.    | 46,1 | 11,8  |
| 6       | 9.     | 47,1 | 6,3   |  | 6       | 14.    | 47,9 | 11,4  |  | 6       | 15.    | 55,4 | 9,3   |
| 8       | 9.     | 42,0 | 5,1   |  | 8       | 14.    | 34,2 | 13,7  |  | 8       | 16.    | 2,0  | 6,6   |
|         |        |      | 3,0   |  |         |        |      | 14,8  |  |         |        |      | 3,2   |
| 1689, 0 | 9.     | 39,0 |       |  | 1697, 0 | 14.    | 19,4 |       |  | 1705, 0 | 16.    | 5,2  |       |
| 2       | 9.     | 38,5 | 0,5   |  | 2       | 14.    | 4,3  | 15,1  |  | 2       | 16.    | 6,1  | 0,9   |
| 4       | 9.     | 39,7 | 1,2   |  | 4       | 13.    | 48,9 | 15,4  |  | 4       | 16.    | 5,2  | 0,9   |
| 6       | 9.     | 42,8 | 3,1   |  | 6       | 13.    | 33,4 | 15,5  |  | 6       | 16.    | 2,1  | 3,1   |
| 8       | 9.     | 47,5 | 4,7   |  | 8       | 13.    | 17,7 | 15,7  |  | 8       | 15.    | 57,0 | 5,1   |
|         |        |      | 7,0   |  |         |        |      | 16,6  |  |         |        |      | 6,9   |
| 1690, 0 | 9.     | 54,5 |       |  | 1698, 0 | 13.    | 1,1  |       |  | 1706, 0 | 15.    | 50,1 |       |
| 2       | 10.    | 4,8  | 10,3  |  | 2       | 12.    | 44,2 | 16,9  |  | 2       | 15.    | 41,1 | 9,0   |
| 4       | 10.    | 16,8 | 12,0  |  | 4       | 12.    | 27,4 | 16,8  |  | 4       | 15.    | 30,8 | 10,3  |
| 6       | 10.    | 30,4 | 13,6  |  | 6       | 12.    | 11,5 | 15,9  |  | 6       | 15.    | 19,4 | 11,4  |
| 8       | 10.    | 45,5 | 15,1  |  | 8       | 11.    | 56,8 | 14,7  |  | 8       | 15.    | 7,8  | 11,6  |
|         |        |      | 16,9  |  |         |        |      | 13,5  |  |         |        |      | 12,4  |
| 1691, 0 | 11.    | 2,4  |       |  | 1699, 0 | 11.    | 43,3 |       |  | 1707, 0 | 14.    | 55,4 |       |
| 2       | 11.    | 20,6 | 18,2  |  | 2       | 11.    | 30,7 | 12,6  |  | 2       | 14.    | 43,0 | 12,4  |
| 4       | 11.    | 40,4 | 19,8  |  | 4       | 11.    | 19,0 | 11,7  |  | 4       | 14.    | 30,6 | 12,4  |
| 6       | 12.    | 0,5  | 20,1  |  | 6       | 11.    | 8,3  | 10,7  |  | 6       | 14.    | 18,3 | 12,3  |
| 8       | 12.    | 21,1 | 20,6  |  | 8       | 10.    | 59,3 | 9,0   |  | 8       | 14.    | 6,0  | 12,3  |
|         |        |      | 21,5  |  |         |        |      | 6,9   |  |         |        |      | 12,5  |
| 1692, 0 | 12.    | 42,6 |       |  | 1700, 0 | 10.    | 52,4 |       |  | 1708, 0 | 13.    | 53,5 |       |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1708, 0 | 13.    | 53,5 |       |  | 1716, 0 | 17.    | 37,5 |       |  | 1724, 0 | 16.    | 3,4  |       |
| 2       | 13.    | 41,2 | 12,3  |  | 2       | 17.    | 36,0 | 1,5   |  | 2       | 16.    | 15,6 | 12,2  |
| 4       | 13.    | 29,9 | 11,3  |  | 4       | 17.    | 32,7 | 3,3   |  | 4       | 16.    | 27,0 | 11,4  |
| 6       | 13.    | 19,1 | 10,8  |  | 6       | 17.    | 27,3 | 5,4   |  | 6       | 16.    | 37,3 | 10,3  |
| 8       | 13.    | 9,1  | 10,0  |  | 8       | 17.    | 20,4 | 6,9   |  | 8       | 16.    | 46,3 | 9,0   |
|         |        |      | 8,9   |  |         |        |      | 7,7   |  |         |        |      | 8,0   |
| 1709, 0 | 13.    | 0,2  |       |  | 1717, 0 | 17.    | 12,7 |       |  | 1725, 0 | 16.    | 54,3 |       |
| 2       | 12.    | 52,5 | 7,7   |  | 2       | 17.    | 3,2  | 9,5   |  | 2       | 17.    | 1,1  | 6,8   |
| 4       | 12.    | 45,7 | 6,8   |  | 4       | 16.    | 52,3 | 10,9  |  | 4       | 17.    | 6,0  | 4,9   |
| 6       | 12.    | 39,6 | 6,1   |  | 6       | 16.    | 40,8 | 11,5  |  | 6       | 17.    | 9,3  | 3,3   |
| 8       | 12.    | 34,3 | 5,3   |  | 8       | 16.    | 28,6 | 12,2  |  | 8       | 17.    | 11,1 | 1,8   |
|         |        |      | 4,5   |  |         |        |      | 13,0  |  |         |        |      | 0,3   |
| 1710, 0 | 12.    | 29,8 |       |  | 1718, 0 | 16.    | 15,6 |       |  | 1726, 0 | 17.    | 11,4 |       |
| 2       | 12.    | 27,0 | 2,8   |  | 2       | 16.    | 2,1  | 13,5  |  | 2       | 17.    | 10,4 | 1,0   |
| 4       | 12.    | 25,7 | 1,3   |  | 4       | 15.    | 48,4 | 13,7  |  | 4       | 17.    | 7,0  | 3,4   |
| 6       | 12.    | 25,6 | 0,1   |  | 6       | 15.    | 35,0 | 13,4  |  | 6       | 17.    | 2,5  | 4,5   |
| 8       | 12.    | 26,9 | 1,3   |  | 8       | 15.    | 22,0 | 13,0  |  | 8       | 16.    | 56,9 | 5,6   |
|         |        |      | 3,0   |  |         |        |      | 12,8  |  |         |        |      | 6,1   |
| 1711, 0 | 12.    | 29,9 |       |  | 1719, 0 | 15.    | 9,2  |       |  | 1727, 0 | 16.    | 49,8 |       |
| 2       | 12.    | 34,9 | 5,0   |  | 2       | 14.    | 57,0 | 12,2  |  | 2       | 16.    | 41,9 | 7,9   |
| 4       | 12.    | 41,4 | 6,5   |  | 4       | 14.    | 45,6 | 11,4  |  | 4       | 16.    | 32,6 | 9,3   |
| 6       | 12.    | 49,6 | 8,2   |  | 6       | 14.    | 35,5 | 10,1  |  | 6       | 16.    | 22,8 | 9,8   |
| 8       | 12.    | 59,1 | 9,5   |  | 8       | 14.    | 26,1 | 9,4   |  | 8       | 16.    | 12,8 | 10,0  |
|         |        |      | 11,4  |  |         |        |      | 8,4   |  |         |        |      | 10,6  |
| 1712, 0 | 13.    | 10,5 |       |  | 1720, 0 | 14.    | 17,7 |       |  | 1728, 0 | 16.    | 2,2  |       |
| 2       | 13.    | 24,1 | 13,6  |  | 2       | 14.    | 9,8  | 7,9   |  | 2       | 15.    | 51,6 | 10,6  |
| 4       | 13.    | 39,0 | 14,9  |  | 4       | 14.    | 3,9  | 5,9   |  | 4       | 15.    | 40,8 | 10,8  |
| 6       | 13.    | 54,7 | 15,7  |  | 6       | 13.    | 59,3 | 4,6   |  | 6       | 15.    | 30,3 | 10,5  |
| 8       | 14.    | 11,3 | 16,6  |  | 8       | 13.    | 55,9 | 3,4   |  | 8       | 15.    | 20,3 | 10,0  |
|         |        |      | 17,8  |  |         |        |      | 2,1   |  |         |        |      | 9,7   |
| 1713, 0 | 14.    | 29,1 |       |  | 1721, 0 | 13.    | 53,8 |       |  | 1729, 0 | 15.    | 10,6 |       |
| 2       | 14.    | 47,5 | 18,4  |  | 2       | 13.    | 54,5 | 0,7   |  | 2       | 15.    | 1,1  | 9,5   |
| 4       | 15.    | 6,4  | 18,9  |  | 4       | 13.    | 56,2 | 1,7   |  | 4       | 14.    | 52,3 | 8,8   |
| 6       | 15.    | 24,8 | 18,4  |  | 6       | 13.    | 59,5 | 3,3   |  | 6       | 14.    | 44,3 | 8,0   |
| 8       | 15.    | 43,0 | 18,2  |  | 8       | 14.    | 3,9  | 4,4   |  | 8       | 14.    | 37,2 | 7,1   |
|         |        |      | 17,9  |  |         |        |      | 4,6   |  |         |        |      | 6,5   |
| 1714, 0 | 16.    | 0,9  |       |  | 1722, 0 | 14.    | 8,5  |       |  | 1730, 0 | 14.    | 30,7 |       |
| 2       | 16.    | 18,5 | 17,6  |  | 2       | 14.    | 16,2 | 7,7   |  | 2       | 14.    | 24,7 | 6,0   |
| 4       | 16.    | 34,5 | 16,0  |  | 4       | 14.    | 26,5 | 10,3  |  | 4       | 14.    | 19,4 | 5,3   |
| 6       | 16.    | 48,6 | 14,1  |  | 6       | 14.    | 36,7 | 10,2  |  | 6       | 14.    | 15,0 | 4,4   |
| 8       | 17.    | 1,1  | 12,5  |  | 8       | 14.    | 47,5 | 10,8  |  | 8       | 14.    | 11,5 | 3,5   |
|         |        |      | 11,4  |  |         |        |      | 11,7  |  |         |        |      | 2,6   |
| 1715, 0 | 17.    | 12,5 |       |  | 1723, 0 | 14.    | 59,2 |       |  | 1731, 0 | 14.    | 8,9  |       |
| 2       | 17.    | 21,1 | 8,6   |  | 2       | 15.    | 11,6 | 12,4  |  | 2       | 14.    | 8,0  | 0,9   |
| 4       | 17.    | 28,1 | 7,0   |  | 4       | 15.    | 24,8 | 13,2  |  | 4       | 14.    | 8,1  | 0,1   |
| 6       | 17.    | 33,3 | 5,2   |  | 6       | 15.    | 38,0 | 13,2  |  | 6       | 14.    | 8,4  | 0,3   |
| 8       | 17.    | 36,4 | 3,1   |  | 8       | 15.    | 51,0 | 13,0  |  | 8       | 14.    | 9,5  | 1,1   |
|         |        |      | 1,1   |  |         |        |      | 12,4  |  |         |        |      | 1,6   |
| 1716, 0 | 17.    | 37,5 |       |  | 1724, 0 | 16.    | 3,4  |       |  | 1732, 0 | 14.    | 11,1 |       |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1732, 0 | 14.    | 11,1 | 3,2   |  | 1740, 0 | 15.    | 30,0 | 1,4   |  | 1748, 0 | 11.    | 19,2 | 8,7   |
| 2       | 14.    | 14,3 | 4,0   |  | 2       | 15.    | 28,6 | 0,8   |  | 2       | 11.    | 10,5 | 6,8   |
| 4       | 14.    | 18,3 | 4,7   |  | 4       | 15.    | 27,8 | 0,1   |  | 4       | 11.    | 3,7  | 4,3   |
| 6       | 14.    | 23,0 | 5,6   |  | 6       | 15.    | 27,9 | 1,1   |  | 6       | 10.    | 59,4 | 2,1   |
| 8       | 14.    | 28,6 | 6,1   |  | 8       | 15.    | 29,0 | 1,7   |  | 8       | 10.    | 57,3 | 1,3   |
| 1733, 0 | 14.    | 34,7 | 7,4   |  | 1741, 0 | 15.    | 30,7 | 2,0   |  | 1749, 0 | 10.    | 56,0 | 4,2   |
| 2       | 14.    | 42,1 | 7,3   |  | 2       | 15.    | 32,7 | 2,6   |  | 2       | 11.    | 0,2  | 5,7   |
| 4       | 14.    | 49,4 | 7,4   |  | 4       | 15.    | 35,3 | 3,1   |  | 4       | 11.    | 5,9  | 8,0   |
| 6       | 14.    | 56,8 | 7,1   |  | 6       | 15.    | 38,4 | 3,2   |  | 6       | 11.    | 13,9 | 10,1  |
| 8       | 15.    | 3,9  | 7,2   |  | 8       | 15.    | 41,6 | 3,2   |  | 8       | 11.    | 24,0 | 13,1  |
| 1734, 0 | 15.    | 11,1 | 8,0   |  | 1742, 0 | 15.    | 44,8 | 3,6   |  | 1750, 0 | 11.    | 37,1 | 15,4  |
| 2       | 15.    | 19,1 | 8,5   |  | 2       | 15.    | 48,4 | 3,4   |  | 2       | 11.    | 52,5 | 18,6  |
| 4       | 15.    | 27,6 | 8,1   |  | 4       | 15.    | 51,8 | 2,9   |  | 4       | 12.    | 11,1 | 18,6  |
| 6       | 15.    | 35,7 | 8,1   |  | 6       | 15.    | 54,7 | 2,1   |  | 6       | 12.    | 29,7 | 19,8  |
| 8       | 15.    | 43,8 | 8,3   |  | 8       | 15.    | 56,8 | 1,5   |  | 8       | 12.    | 49,5 | 23,3  |
| 1735, 0 | 15.    | 52,1 | 7,4   |  | 1743, 0 | 15.    | 58,3 | 0,7   |  | 1751, 0 | 13.    | 12,8 | 23,2  |
| 2       | 15.    | 59,5 | 6,0   |  | 2       | 15.    | 59,0 | 1,4   |  | 2       | 13.    | 36,0 | 23,9  |
| 4       | 16.    | 5,5  | 5,3   |  | 4       | 15.    | 57,6 | 1,9   |  | 4       | 13.    | 59,9 | 23,9  |
| 6       | 16.    | 10,8 | 5,9   |  | 6       | 15.    | 55,7 | 2,9   |  | 6       | 14.    | 23,8 | 24,0  |
| 8       | 16.    | 16,7 | 3,5   |  | 8       | 15.    | 52,8 | 3,7   |  | 8       | 14.    | 47,8 | 23,6  |
| 1736, 0 | 16.    | 20,2 | 3,5   |  | 1744, 0 | 15.    | 49,1 | 6,3   |  | 1752, 0 | 15.    | 11,4 | 23,5  |
| 2       | 16.    | 23,7 | 2,6   |  | 2       | 15.    | 42,8 | 7,5   |  | 2       | 15.    | 34,9 | 21,7  |
| 4       | 16.    | 26,3 | 0,7   |  | 4       | 15.    | 35,3 | 8,6   |  | 4       | 15.    | 56,6 | 20,5  |
| 6       | 16.    | 27,0 | 0,4   |  | 6       | 15.    | 26,7 | 9,9   |  | 6       | 16.    | 17,1 | 19,0  |
| 8       | 16.    | 27,4 | 0,2   |  | 8       | 15.    | 16,8 | 11,1  |  | 8       | 16.    | 36,1 | 16,7  |
| 1737, 0 | 16.    | 27,2 | 1,4   |  | 1745, 0 | 15.    | 5,7  | 12,4  |  | 1753, 0 | 16.    | 52,8 | 15,7  |
| 2       | 16.    | 25,8 | 2,4   |  | 2       | 14.    | 53,3 | 13,5  |  | 2       | 17.    | 8,5  | 12,6  |
| 4       | 16.    | 23,4 | 3,3   |  | 4       | 14.    | 39,8 | 14,7  |  | 4       | 17.    | 21,1 | 10,6  |
| 6       | 16.    | 20,1 | 3,7   |  | 6       | 14.    | 25,1 | 16,0  |  | 6       | 17.    | 31,7 | 8,9   |
| 8       | 16.    | 16,4 | 4,5   |  | 8       | 14.    | 9,1  | 17,1  |  | 8       | 17.    | 40,6 | 6,4   |
| 1738, 0 | 16.    | 11,9 | 5,2   |  | 1746, 0 | 13.    | 52,0 | 17,0  |  | 1754, 0 | 17.    | 47,0 | 3,9   |
| 2       | 16.    | 6,7  | 5,1   |  | 2       | 13.    | 35,0 | 17,6  |  | 2       | 17.    | 50,9 | 2,1   |
| 4       | 16.    | 1,6  | 4,7   |  | 4       | 13.    | 17,4 | 17,2  |  | 4       | 17.    | 53,0 | 0,2   |
| 6       | 15.    | 56,9 | 5,0   |  | 6       | 13.    | 0,2  | 16,3  |  | 6       | 17.    | 52,8 | 2,4   |
| 8       | 15.    | 51,9 | 5,2   |  | 8       | 12.    | 43,9 | 16,3  |  | 8       | 17.    | 50,4 | 3,6   |
| 1739, 0 | 15.    | 46,7 | 4,8   |  | 1747, 0 | 12.    | 27,6 | 16,2  |  | 1755, 0 | 17.    | 46,8 | 6,3   |
| 2       | 15.    | 41,9 | 4,1   |  | 2       | 12.    | 11,4 | 15,1  |  | 2       | 17.    | 40,5 | 7,9   |
| 4       | 15.    | 37,8 | 2,9   |  | 4       | 11.    | 56,3 | 13,5  |  | 4       | 17.    | 32,6 | 9,1   |
| 6       | 15.    | 34,9 | 2,8   |  | 6       | 11.    | 42,8 | 12,4  |  | 6       | 17.    | 23,5 | 11,1  |
| 8       | 15.    | 32,1 | 2,1   |  | 8       | 11.    | 30,4 | 11,2  |  | 8       | 17.    | 12,4 | 12,3  |
| 1740, 0 | 15.    | 30,0 |       |  | 1748, 0 | 11.    | 19,2 |       |  | 1756, 0 | 17.    | 0,1  |       |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1756, 0 | 17.    | 0,1  | 14,1  |  | 1764, 0 | 17.    | 4,5  | 10,7  |  | 1772, 0 | 14.    | 24,9 | 15,6  |
| 2       | 16.    | 46,0 | 15,3  |  | 2       | 17.    | 15,2 | 8,0   |  | 2       | 14.    | 40,5 | 16,1  |
| 4       | 16.    | 30,7 | 15,9  |  | 4       | 17.    | 23,2 | 5,5   |  | 4       | 14.    | 56,6 | 17,2  |
| 6       | 16.    | 14,8 | 17,0  |  | 6       | 17.    | 28,7 | 2,5   |  | 6       | 15.    | 13,8 | 18,2  |
| 8       | 15.    | 57,8 | 17,6  |  | 8       | 17.    | 31,2 | 0,3   |  | 8       | 15.    | 32,0 | 19,4  |
| 1757, 0 | 15.    | 40,2 | 18,6  |  | 1765, 0 | 17.    | 31,5 | 2,1   |  | 1773, 0 | 15.    | 51,4 | 19,5  |
| 2       | 15.    | 21,6 | 19,0  |  | 2       | 17.    | 29,4 | 4,6   |  | 2       | 16.    | 10,9 | 18,7  |
| 4       | 15.    | 2,6  | 19,3  |  | 4       | 17.    | 24,8 | 6,4   |  | 4       | 16.    | 29,6 | 18,4  |
| 6       | 14.    | 43,3 | 19,7  |  | 6       | 17.    | 18,4 | 8,0   |  | 6       | 16.    | 48,0 | 17,8  |
| 8       | 14.    | 23,6 | 19,9  |  | 8       | 17.    | 10,4 | 9,7   |  | 8       | 17.    | 5,8  | 17,3  |
| 1758, 0 | 14.    | 3,7  | 20,1  |  | 1766, 0 | 17.    | 0,7  | 10,0  |  | 1774, 0 | 17.    | 23,1 | 15,7  |
| 2       | 13.    | 43,6 | 19,4  |  | 2       | 16.    | 50,7 | 11,4  |  | 2       | 17.    | 38,8 | 13,7  |
| 4       | 13.    | 24,2 | 18,4  |  | 4       | 16.    | 39,3 | 12,2  |  | 4       | 17.    | 52,5 | 12,3  |
| 6       | 13.    | 5,8  | 17,7  |  | 6       | 16.    | 27,1 | 13,0  |  | 6       | 18.    | 4,8  | 10,9  |
| 8       | 12.    | 48,1 | 14,9  |  | 8       | 16.    | 14,1 | 13,8  |  | 8       | 18.    | 15,7 | 9,3   |
| 1759, 0 | 12.    | 33,2 | 13,7  |  | 1767, 0 | 16.    | 0,3  | 13,1  |  | 1775, 0 | 18.    | 25,0 | 5,8   |
| 2       | 12.    | 19,5 | 11,4  |  | 2       | 15.    | 47,2 | 13,3  |  | 2       | 18.    | 30,8 | 4,2   |
| 4       | 12.    | 8,1  | 10,0  |  | 4       | 15.    | 33,9 | 13,1  |  | 4       | 18.    | 35,0 | 2,3   |
| 6       | 11.    | 58,1 | 7,4   |  | 6       | 15.    | 20,8 | 12,6  |  | 6       | 18.    | 37,3 | 0,6   |
| 8       | 11.    | 50,7 | 4,3   |  | 8       | 15.    | 8,2  | 12,4  |  | 8       | 18.    | 37,9 | 0,8   |
| 1760, 0 | 11.    | 46,4 | 1,6   |  | 1768, 0 | 14.    | 55,8 | 12,4  |  | 1776, 0 | 18.    | 37,1 | 2,5   |
| 2       | 11.    | 44,8 | 2,4   |  | 2       | 14.    | 43,4 | 11,2  |  | 2       | 18.    | 34,6 | 4,8   |
| 4       | 11.    | 47,2 | 4,5   |  | 4       | 14.    | 32,2 | 10,7  |  | 4       | 18.    | 29,8 | 7,3   |
| 6       | 11.    | 51,7 | 6,2   |  | 6       | 14.    | 21,5 | 9,7   |  | 6       | 18.    | 22,5 | 7,7   |
| 8       | 11.    | 57,9 | 10,4  |  | 8       | 14.    | 11,8 | 9,1   |  | 8       | 18.    | 14,8 | 9,1   |
| 1761, 0 | 12.    | 8,3  | 14,1  |  | 1769, 0 | 14.    | 2,7  | 9,9   |  | 1777, 0 | 18.    | 5,7  | 10,2  |
| 2       | 12.    | 22,4 | 17,4  |  | 2       | 13.    | 52,8 | 8,1   |  | 2       | 17.    | 55,5 | 11,2  |
| 4       | 12.    | 39,8 | 18,4  |  | 4       | 13.    | 44,7 | 6,2   |  | 4       | 17.    | 44,3 | 11,8  |
| 6       | 12.    | 58,2 | 20,4  |  | 6       | 13.    | 38,5 | 5,5   |  | 6       | 17.    | 32,5 | 12,2  |
| 8       | 13.    | 18,6 | 22,2  |  | 8       | 13.    | 33,0 | 3,6   |  | 8       | 17.    | 20,3 | 12,7  |
| 1762, 0 | 13.    | 40,8 | 23,4  |  | 1770, 0 | 13.    | 29,4 | 2,2   |  | 1778, 0 | 17.    | 7,6  | 12,9  |
| 2       | 14.    | 4,2  | 23,1  |  | 2       | 13.    | 27,2 | 0,5   |  | 2       | 16.    | 54,7 | 12,7  |
| 4       | 14.    | 27,3 | 23,0  |  | 4       | 13.    | 26,7 | 0,9   |  | 4       | 16.    | 42,0 | 12,8  |
| 6       | 14.    | 50,3 | 23,1  |  | 6       | 13.    | 27,6 | 2,5   |  | 6       | 16.    | 29,2 | 12,4  |
| 8       | 15.    | 13,4 | 22,9  |  | 8       | 13.    | 30,1 | 4,0   |  | 8       | 16.    | 16,8 | 11,9  |
| 1763, 0 | 15.    | 36,3 | 22,0  |  | 1771, 0 | 13.    | 34,1 | 6,8   |  | 1779, 0 | 16.    | 4,9  | 10,7  |
| 2       | 15.    | 58,3 | 19,2  |  | 2       | 13.    | 40,9 | 8,4   |  | 2       | 15.    | 54,2 | 10,3  |
| 4       | 16.    | 17,5 | 17,9  |  | 4       | 13.    | 49,3 | 10,1  |  | 4       | 15.    | 43,9 | 9,8   |
| 6       | 16.    | 35,4 | 15,5  |  | 6       | 13.    | 59,4 | 12,1  |  | 6       | 15.    | 34,1 | 9,1   |
| 8       | 16.    | 50,9 | 13,6  |  | 8       | 14.    | 11,5 | 13,4  |  | 8       | 15.    | 25,0 | 7,5   |
| 1764, 0 | 17.    | 4,5  |       |  | 1772, 0 | 14.    | 24,9 |       |  | 1780, 0 | 15.    | 17,5 |       |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1780, 0 | 15.    | 17,5 | 6,3   |  | 1788, 0 | 16.    | 45,8 | 7,9   |  | 1796, 0 | 16.    | 42,3 | 0,0   |
| 2       | 15.    | 11,2 | 4,7   |  | 2       | 16.    | 37,9 | 7,8   |  | 2       | 16.    | 42,3 | 0,6   |
| 4       | 15.    | 6,5  | 3,5   |  | 4       | 16.    | 30,1 | 7,7   |  | 4       | 16.    | 41,7 | 1,0   |
| 6       | 15.    | 3,0  | 2,4   |  | 6       | 16.    | 22,4 | 7,6   |  | 6       | 16.    | 40,7 | 1,6   |
| 8       | 15.    | 0,6  | 0,8   |  | 8       | 16.    | 14,8 | 6,5   |  | 8       | 16.    | 39,1 | 2,0   |
| 1781, 0 | 14.    | 59,8 | 1,4   |  | 1789, 0 | 16.    | 8,3  | 6,2   |  | 1797, 0 | 16.    | 37,1 | 3,2   |
| 2       | 15.    | 1,2  | 3,1   |  | 2       | 16.    | 2,1  | 6,3   |  | 2       | 16.    | 33,9 | 3,9   |
| 4       | 15.    | 4,3  | 4,1   |  | 4       | 15.    | 55,8 | 5,1   |  | 4       | 16.    | 30,0 | 3,5   |
| 6       | 15.    | 8,4  | 5,2   |  | 6       | 15.    | 50,7 | 4,3   |  | 6       | 16.    | 26,5 | 3,1   |
| 8       | 15.    | 13,6 | 6,0   |  | 8       | 15.    | 46,4 | 5,0   |  | 8       | 16.    | 23,4 | 3,0   |
| 1782, 0 | 15.    | 19,6 | 7,6   |  | 1790, 0 | 15.    | 41,4 | 4,2   |  | 1798, 0 | 16.    | 20,4 | 2,7   |
| 2       | 15.    | 27,2 | 8,6   |  | 2       | 15.    | 37,2 | 3,9   |  | 2       | 16.    | 17,7 | 2,8   |
| 4       | 15.    | 35,8 | 9,4   |  | 4       | 15.    | 33,3 | 3,2   |  | 4       | 16.    | 14,9 | 2,1   |
| 6       | 15.    | 45,2 | 10,1  |  | 6       | 15.    | 30,1 | 2,3   |  | 6       | 16.    | 12,8 | 1,4   |
| 8       | 15.    | 55,3 | 10,7  |  | 8       | 15.    | 27,8 | 1,1   |  | 8       | 16.    | 11,4 | 2,6   |
| 1783, 0 | 16.    | 6,0  | 11,0  |  | 1791, 0 | 15.    | 26,7 | 1,2   |  | 1799, 0 | 16.    | 8,8  | 0,2   |
| 2       | 16.    | 17,0 | 11,0  |  | 2       | 15.    | 25,5 | 2,3   |  | 2       | 16.    | 8,6  | 0,0   |
| 4       | 16.    | 28,0 | 11,0  |  | 4       | 15.    | 23,2 | 2,5   |  | 4       | 16.    | 8,6  | 0,9   |
| 6       | 16.    | 39,0 | 10,9  |  | 6       | 15.    | 25,7 | 1,3   |  | 6       | 16.    | 9,5  | 1,4   |
| 8       | 16.    | 49,9 | 10,5  |  | 8       | 15.    | 27,0 | 1,7   |  | 8       | 16.    | 10,9 | 2,2   |
| 1784, 0 | 17.    | 0,4  | 9,1   |  | 1792, 0 | 15.    | 28,7 | 2,8   |  | 1800, 0 | 16.    | 13,1 | 2,6   |
| 2       | 17.    | 9,5  | 8,4   |  | 2       | 15.    | 31,5 | 2,8   |  | 2       | 16.    | 15,7 | 2,9   |
| 4       | 17.    | 17,9 | 7,3   |  | 4       | 15.    | 34,3 | 3,2   |  | 4       | 16.    | 18,6 | 3,4   |
| 6       | 17.    | 25,2 | 6,2   |  | 6       | 15.    | 37,5 | 3,5   |  | 6       | 16.    | 22,0 | 4,0   |
| 8       | 17.    | 31,4 | 5,7   |  | 8       | 15.    | 41,0 | 4,1   |  | 8       | 16.    | 26,0 | 4,6   |
| 1785, 0 | 17.    | 37,1 | 3,7   |  | 1793, 0 | 15.    | 45,1 | 5,0   |  | 1801, 0 | 16.    | 30,6 | 5,1   |
| 2       | 17.    | 40,8 | 1,7   |  | 2       | 15.    | 50,1 | 5,1   |  | 2       | 16.    | 35,7 | 4,9   |
| 4       | 17.    | 42,5 | 1,4   |  | 4       | 15.    | 55,2 | 4,9   |  | 4       | 16.    | 40,6 | 4,2   |
| 6       | 17.    | 43,9 | 0,7   |  | 6       | 16.    | 0,1  | 4,9   |  | 6       | 16.    | 44,8 | 4,3   |
| 8       | 17.    | 44,6 | 0,9   |  | 8       | 16.    | 5,0  | 4,7   |  | 8       | 16.    | 49,1 | 3,9   |
| 1786, 0 | 17.    | 43,7 | 2,8   |  | 1794, 0 | 16.    | 9,7  | 5,7   |  | 1802, 0 | 16.    | 53,0 | 2,2   |
| 2       | 17.    | 40,9 | 3,8   |  | 2       | 16.    | 15,4 | 5,5   |  | 2       | 16.    | 55,2 | 1,8   |
| 4       | 17.    | 37,1 | 4,2   |  | 4       | 16.    | 20,9 | 5,1   |  | 4       | 16.    | 57,0 | 0,6   |
| 6       | 17.    | 32,9 | 5,0   |  | 6       | 16.    | 26,0 | 4,2   |  | 6       | 16.    | 57,6 | 0,2   |
| 8       | 17.    | 27,9 | 5,6   |  | 8       | 16.    | 30,2 | 2,8   |  | 8       | 16.    | 57,4 | 1,3   |
| 1787, 0 | 17.    | 22,3 | 7,2   |  | 1795, 0 | 16.    | 33,0 | 2,9   |  | 1803, 0 | 16.    | 56,1 | 2,1   |
| 2       | 17.    | 15,1 | 7,7   |  | 2       | 16.    | 35,9 | 2,7   |  | 2       | 16.    | 54,0 | 4,5   |
| 4       | 17.    | 7,4  | 7,3   |  | 4       | 16.    | 38,6 | 2,0   |  | 4       | 16.    | 49,5 | 5,4   |
| 6       | 17.    | 0,1  | 7,0   |  | 6       | 16.    | 40,6 | 1,2   |  | 6       | 16.    | 44,1 | 7,3   |
| 8       | 16.    | 53,1 | 7,3   |  | 8       | 16.    | 41,8 | 0,5   |  | 8       | 16.    | 36,8 | 9,0   |
| 1788, 0 | 16.    | 45,8 |       |  | 1796, 0 | 16.    | 42,3 |       |  | 1804, 0 | 16.    | 27,8 |       |



TABLE XXIX. Equations arising from the action of Jupiter.

| YEARS.  | Equat. |      | Diff. | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|---------|--------|------|-------|
|         | M.     | S.   | SEC.  |         | M.     | S.   | SEC.  |
| 1804, 0 | 16.    | 27,8 |       | 1812, 0 | 16.    | 8,8  | 23,0  |
| 2       | 16.    | 17,9 | 9,9   | 2       | 16.    | 31,8 | 21,6  |
| 4       | 16.    | 6,4  | 11,5  | 4       | 16.    | 53,4 | 17,6  |
| 6       | 15.    | 51,5 | 14,9  | 6       | 17.    | 11,0 | 17,1  |
| 8       | 15.    | 36,1 | 15,4  | 8       | 17.    | 28,1 | 14,9  |
|         |        |      | 16,5  |         |        |      |       |
| 1805, 0 | 15.    | 19,6 |       | 1813, 0 | 17.    | 43,0 | 11,0  |
| 2       | 15.    | 2,0  | 17,6  | 2       | 17.    | 54,0 | 8,8   |
| 4       | 14.    | 43,1 | 18,9  | 4       | 18.    | 2,8  | 6,5   |
| 6       | 14.    | 23,6 | 19,5  | 6       | 18.    | 9,3  | 4,8   |
| 8       | 14.    | 2,9  | 20,7  | 8       | 18.    | 14,1 | 2,3   |
|         |        |      | 21,0  |         |        |      |       |
| 1806, 0 | 13.    | 41,9 |       | 1814, 0 | 18.    | 16,4 | 0,6   |
| 2       | 13.    | 21,4 | 20,5  | 2       | 18.    | 17,0 | 0,8   |
| 4       | 13.    | 1,1  | 20,3  | 4       | 18.    | 16,2 | 4,0   |
| 6       | 12.    | 41,7 | 19,4  | 6       | 18.    | 12,2 | 6,7   |
| 8       | 12.    | 23,0 | 18,7  | 8       | 18.    | 5,5  | 8,7   |
|         |        |      | 18,5  |         |        |      |       |
| 1807, 0 | 12.    | 4,5  |       | 1815, 0 | 17.    | 56,8 | 10,4  |
| 2       | 11.    | 48,0 | 16,5  | 2       | 17.    | 46,4 | 12,0  |
| 4       | 11.    | 32,2 | 15,8  | 4       | 17.    | 34,4 | 12,6  |
| 6       | 11.    | 19,4 | 12,8  | 6       | 17.    | 21,8 | 14,1  |
| 8       | 11.    | 8,1  | 11,3  | 8       | 17.    | 7,7  | 15,8  |
|         |        |      | 8,9   |         |        |      |       |
| 1808, 0 | 10.    | 59,2 |       | 1816, 0 | 16.    | 51,9 | 17,5  |
| 2       | 10.    | 53,4 | 5,8   | 2       | 16.    | 34,4 | 18,6  |
| 4       | 10.    | 50,5 | 2,9   | 4       | 16.    | 15,8 | 20,4  |
| 6       | 10.    | 50,4 | 0,1   | 6       | 15.    | 55,4 | 21,8  |
| 8       | 10.    | 53,1 | 2,7   | 8       | 15.    | 33,6 | 22,6  |
|         |        |      | 5,5   |         |        |      |       |
| 1809, 0 | 10.    | 58,6 |       | 1817, 0 | 15.    | 11,0 | 23,4  |
| 2       | 11.    | 6,4  | 7,8   | 2       | 14.    | 47,6 | 22,4  |
| 4       | 11.    | 17,5 | 11,1  | 4       | 14.    | 25,2 | 21,5  |
| 6       | 11.    | 30,6 | 13,1  | 6       | 14.    | 3,7  | 22,7  |
| 8       | 11.    | 46,8 | 16,2  | 8       | 13.    | 41,0 | 22,5  |
|         |        |      | 18,5  |         |        |      |       |
| 1810, 0 | 12.    | 5,3  |       | 1818, 0 | 13.    | 18,5 | 20,6  |
| 2       | 12.    | 25,8 | 20,5  | 2       | 12.    | 57,9 | 19,8  |
| 4       | 12.    | 48,5 | 22,7  | 4       | 12.    | 38,1 | 18,3  |
| 6       | 13.    | 12,2 | 23,7  | 6       | 12.    | 19,8 | 17,3  |
| 8       | 13.    | 36,5 | 24,3  | 8       | 12.    | 2,5  | 14,9  |
|         |        |      | 26,2  |         |        |      |       |
| 1811, 0 | 14.    | 2,7  |       | 1819, 0 | 11.    | 47,6 | 11,7  |
| 2       | 14.    | 28,7 | 26,0  | 2       | 11.    | 35,9 | 8,9   |
| 4       | 14.    | 55,0 | 26,3  | 4       | 11.    | 27,0 | 6,3   |
| 6       | 15.    | 19,9 | 24,9  | 6       | 11.    | 20,7 | 3,8   |
| 8       | 15.    | 44,7 | 24,8  | 8       | 11.    | 16,9 | 0,1   |
|         |        |      | 24,1  |         |        |      |       |
| 1812, 0 | 16.    | 8,8  |       | 1820, 0 | 11.    | 16,8 |       |



TABLE XXX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |
|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|
|         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |
| 0       | 3.          | 14. | 23,3 |       |  | 4000    | 1.          | 36. | 45,1 |       |  | 8000    | 0.          | 38. | 44,2 |       |
| 100     | 3.          | 11. | 47,0 | 156,3 |  | 4100    | 1.          | 34. | 39,7 | 125,4 |  | 8100    | 0.          | 38. | 5,7  | 38,5  |
| 200     | 3.          | 9.  | 10,7 | 156,3 |  | 4200    | 1.          | 32. | 35,8 | 123,9 |  | 8200    | 0.          | 37. | 29,9 | 35,8  |
| 300     | 3.          | 6.  | 34,5 | 156,2 |  | 4300    | 1.          | 30. | 33,6 | 122,2 |  | 8300    | 0.          | 36. | 56,8 | 33,1  |
| 400     | 3.          | 3.  | 58,3 | 156,2 |  | 4400    | 1.          | 28. | 32,7 | 120,9 |  | 8400    | 0.          | 36. | 26,5 | 30,3  |
|         |             |     |      | 156,1 |  |         |             |     |      | 119,0 |  |         |             |     |      | 26,6  |
| 500     | 3.          | 1.  | 22,2 | 155,9 |  | 4500    | 1.          | 26. | 33,7 | 117,4 |  | 8500    | 0.          | 35. | 59,9 | 25,9  |
| 600     | 2.          | 58. | 46,3 | 155,7 |  | 4600    | 1.          | 24. | 36,3 | 115,7 |  | 8600    | 0.          | 35. | 34,0 | 21,8  |
| 700     | 2.          | 56. | 10,6 | 155,5 |  | 4700    | 1.          | 22. | 40,6 | 113,8 |  | 8700    | 0.          | 35. | 12,2 | 19,1  |
| 800     | 2.          | 53. | 35,1 | 155,2 |  | 4800    | 1.          | 20. | 46,8 | 112,1 |  | 8800    | 0.          | 34. | 53,1 | 16,4  |
| 900     | 2.          | 50. | 59,9 | 154,8 |  | 4900    | 1.          | 18. | 54,7 | 110,2 |  | 8900    | 0.          | 34. | 36,7 | 13,6  |
|         |             |     |      | 154,5 |  |         |             |     |      | 108,1 |  |         |             |     |      | 10,7  |
| 1000    | 2.          | 48. | 25,1 | 154,1 |  | 5000    | 1.          | 17. | 4,5  | 106,6 |  | 9000    | 0.          | 34. | 23,1 | 7,8   |
| 1100    | 2.          | 45. | 50,6 | 153,7 |  | 5100    | 1.          | 15. | 16,4 | 104,6 |  | 9100    | 0.          | 34. | 12,4 | 5,0   |
| 1200    | 2.          | 43. | 16,5 | 153,1 |  | 5200    | 1.          | 13. | 29,8 | 102,5 |  | 9200    | 0.          | 34. | 4,6  | 2,0   |
| 1300    | 2.          | 40. | 42,8 | 152,6 |  | 5300    | 1.          | 11. | 45,2 | 100,7 |  | 9300    | 0.          | 33. | 59,6 | 0,9   |
| 1400    | 2.          | 38. | 9,7  | 152,0 |  | 5400    | 1.          | 10. | 2,7  | 98,4  |  | 9400    | 0.          | 33. | 57,6 | 3,9   |
|         |             |     |      | 151,6 |  |         |             |     |      | 96,4  |  |         |             |     |      | 7,3   |
| 1500    | 2.          | 35. | 37,1 | 150,9 |  | 5500    | 1.          | 8.  | 22,0 | 94,4  |  | 9500    | 0.          | 34. | 2,4  | 9,0   |
| 1600    | 2.          | 33. | 5,1  | 150,0 |  | 5600    | 1.          | 6.  | 43,6 | 92,4  |  | 9600    | 0.          | 34. | 9,7  | 12,5  |
| 1700    | 2.          | 30. | 33,5 | 149,5 |  | 5700    | 1.          | 5.  | 7,2  | 90,1  |  | 9700    | 0.          | 34. | 18,7 | 15,7  |
| 1800    | 2.          | 28. | 2,6  | 148,5 |  | 5800    | 1.          | 3.  | 32,8 | 87,9  |  | 9800    | 0.          | 34. | 31,2 | 18,5  |
| 1900    | 2.          | 25. | 32,6 | 148,0 |  | 5900    | 1.          | 2.  | 0,4  | 85,7  |  | 9900    | 0.          | 34. | 46,9 | 21,3  |
|         |             |     |      | 147,0 |  |         |             |     |      | 83,5  |  |         |             |     |      | 24,2  |
| 2000    | 2.          | 23. | 3,1  | 146,1 |  | 6000    | 1.          | 0.  | 30,3 | 81,3  |  | 10000   | 0.          | 35. | 5,4  | 27,9  |
| 2100    | 2.          | 20. | 34,6 | 145,3 |  | 6100    | 0.          | 59. | 2,4  | 78,9  |  | 10100   | 0.          | 35. | 26,7 | 29,8  |
| 2200    | 2.          | 18. | 6,6  | 144,3 |  | 6200    | 0.          | 57. | 36,7 | 76,3  |  | 10200   | 0.          | 35. | 50,9 | 33,2  |
| 2300    | 2.          | 15. | 39,6 | 143,4 |  | 6300    | 0.          | 56. | 13,2 | 74,3  |  | 10300   | 0.          | 36. | 18,8 | 36,2  |
| 2400    | 2.          | 13. | 13,5 | 142,4 |  | 6400    | 0.          | 54. | 51,9 | 71,9  |  | 10400   | 0.          | 36. | 48,6 | 39,1  |
|         |             |     |      | 141,1 |  |         |             |     |      | 69,3  |  |         |             |     |      | 42,0  |
| 2500    | 2.          | 10. | 48,2 | 140,1 |  | 6500    | 0.          | 53. | 33,0 | 67,0  |  | 10500   | 0.          | 37. | 21,8 | 45,1  |
| 2600    | 2.          | 8.  | 23,9 | 139,0 |  | 6600    | 0.          | 52. | 16,7 | 64,6  |  | 10600   | 0.          | 37. | 58,0 | 47,8  |
| 2700    | 2.          | 6.  | 0,5  | 137,8 |  | 6700    | 0.          | 51. | 2,4  | 62,1  |  | 10700   | 0.          | 38. | 37,1 | 50,8  |
| 2800    | 2.          | 3.  | 38,1 | 136,5 |  | 6800    | 0.          | 49. | 50,5 | 59,4  |  | 10800   | 0.          | 41. | 42,8 | 53,8  |
| 2900    | 2.          | 1.  | 17,0 | 135,3 |  | 6900    | 0.          | 48. | 41,2 | 57,0  |  | 10900   | 0.          | 42. | 36,6 | 56,7  |
|         |             |     |      | 134,1 |  |         |             |     |      | 54,3  |  |         |             |     |      | 59,6  |
| 3000    | 1.          | 58. | 56,9 | 132,5 |  | 7000    | 0.          | 47. | 34,2 | 51,8  |  | 11000   | 0.          | 44. | 32,9 | 62,3  |
| 3100    | 1.          | 56. | 37,9 | 131,2 |  | 7100    | 0.          | 46. | 29,6 | 49,3  |  | 11100   | 0.          | 45. | 35,2 | 65,5  |
| 3200    | 1.          | 54. | 20,1 | 130,0 |  | 7200    | 0.          | 45. | 27,5 | 46,4  |  | 11200   | 0.          | 46. | 40,7 | 68,3  |
| 3300    | 1.          | 52. | 3,6  | 128,5 |  | 7300    | 0.          | 44. | 28,1 | 43,9  |  | 11300   | 0.          | 47. | 49,0 | 70,9  |
| 3400    | 1.          | 49. | 48,3 | 126,9 |  | 7400    | 0.          | 43. | 31,1 | 41,2  |  | 11400   | 0.          | 48. | 59,9 | 73,9  |
|         |             |     |      |       |  |         |             |     |      |       |  |         |             |     |      |       |
| 3500    | 1.          | 47. | 34,2 |       |  | 7500    | 0.          | 42. | 36,8 |       |  | 11500   | 0.          | 50. | 13,8 |       |
| 3600    | 1.          | 45. | 21,7 |       |  | 7600    | 0.          | 41. | 45,0 |       |  | 11600   | 0.          |     |      |       |
| 3700    | 1.          | 43. | 10,5 |       |  | 7700    | 0.          | 40. | 55,7 |       |  | 11700   | 0.          |     |      |       |
| 3800    | 1.          | 41. | 0,5  |       |  | 7800    | 0.          | 40. | 9,3  |       |  | 11800   | 0.          |     |      |       |
| 3900    | 1.          | 38. | 52,0 |       |  | 7900    | 0.          | 39. | 25,4 |       |  | 11900   | 0.          |     |      |       |
| 4000    | 1.          | 36. | 45,1 |       |  | 8000    | 0.          | 38. | 44,2 |       |  | 12000   | 0.          |     |      |       |



TABLE XXX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. | Arg. A. | Equation A. | Diff. |
|---------|-------------|-------|---------|-------------|-------|---------|-------------|-------|
|         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |         | H. M. S.    | SEC.  |
| 12000   | 0. 50. 13,8 | 76,6  | 16000   | 2. 13. 4,6  | 163,6 | 20000   | 4. 7. 49,3  | 163,9 |
| 12100   | 0. 51. 30,4 | 79,6  | 16100   | 2. 15. 48,2 | 164,7 | 20100   | 4. 10. 33,2 | 162,9 |
| 12200   | 0. 52. 50,0 | 82,2  | 16200   | 2. 18. 32,9 | 165,9 | 20200   | 4. 13. 16,1 | 161,2 |
| 12300   | 0. 54. 12,2 | 85,1  | 16300   | 2. 21. 18,8 | 167,1 | 20300   | 4. 15. 57,3 | 159,8 |
| 12400   | 0. 55. 37,3 | 87,9  | 16400   | 2. 24. 5,9  | 167,9 | 20400   | 4. 18. 37,1 | 158,6 |
| 12500   | 0. 57. 5,2  | 90,6  | 16500   | 2. 26. 53,8 | 169,3 | 20500   | 4. 21. 15,7 | 156,9 |
| 12600   | 0. 58. 35,8 | 92,8  | 16600   | 2. 29. 43,1 | 170,0 | 20600   | 4. 23. 52,6 | 155,5 |
| 12700   | 1. 0. 8,6   | 96,1  | 16700   | 2. 32. 33,1 | 170,8 | 20700   | 4. 26. 28,1 | 153,8 |
| 12800   | 1. 1. 44,7  | 98,6  | 16800   | 2. 35. 23,9 | 171,5 | 20800   | 4. 29. 1,9  | 152,2 |
| 12900   | 1. 3. 23,3  | 101,2 | 16900   | 2. 38. 15,4 | 172,3 | 20900   | 4. 31. 34,1 | 150,6 |
| 13000   | 1. 5. 4,5   | 103,8 | 17000   | 2. 41. 7,7  | 173,2 | 21000   | 4. 34. 4,7  | 148,7 |
| 13100   | 1. 6. 48,3  | 106,4 | 17100   | 2. 44. 0,9  | 173,9 | 21100   | 4. 36. 33,4 | 147,0 |
| 13200   | 1. 8. 34,7  | 108,8 | 17200   | 2. 46. 54,8 | 174,2 | 21200   | 4. 39. 0,4  | 145,3 |
| 13300   | 1. 10. 23,5 | 111,4 | 17300   | 2. 49. 49,0 | 174,8 | 21300   | 4. 41. 25,7 | 143,1 |
| 13400   | 1. 12. 14,9 | 113,9 | 17400   | 2. 52. 43,8 | 175,1 | 21400   | 4. 43. 48,8 | 141,3 |
| 13500   | 1. 14. 8,8  | 116,4 | 17500   | 2. 55. 38,9 | 175,6 | 21500   | 4. 46. 10,1 | 139,2 |
| 13600   | 1. 16. 5,2  | 118,6 | 17600   | 2. 58. 34,5 | 175,7 | 21600   | 4. 48. 29,3 | 137,3 |
| 13700   | 1. 18. 3,8  | 121,2 | 17700   | 3. 1. 30,2  | 176,2 | 21700   | 4. 50. 46,6 | 135,2 |
| 13800   | 1. 20. 5,0  | 123,4 | 17800   | 3. 4. 26,4  | 176,1 | 21800   | 4. 53. 1,8  | 133,3 |
| 13900   | 1. 22. 8,4  | 125,7 | 17900   | 3. 7. 22,5  | 176,5 | 21900   | 4. 55. 15,1 | 130,8 |
| 14000   | 1. 24. 14,1 | 128,0 | 18000   | 3. 10. 19,0 | 176,3 | 22000   | 4. 57. 25,9 | 128,5 |
| 14100   | 1. 26. 22,1 | 130,1 | 18100   | 3. 13. 15,3 | 176,4 | 22100   | 4. 59. 34,4 | 126,5 |
| 14200   | 1. 28. 32,2 | 132,4 | 18200   | 3. 16. 11,7 | 176,4 | 22200   | 5. 1. 40,9  | 124,2 |
| 14300   | 1. 30. 44,6 | 134,5 | 18300   | 3. 19. 8,1  | 176,1 | 22300   | 5. 3. 45,1  | 122,0 |
| 14400   | 1. 32. 59,1 | 136,7 | 18400   | 3. 22. 4,2  | 175,9 | 22400   | 5. 5. 47,1  | 119,5 |
| 14500   | 1. 35. 15,8 | 138,7 | 18500   | 3. 25. 0,1  | 175,6 | 22500   | 5. 7. 46,6  | 117,1 |
| 14600   | 1. 37. 34,5 | 140,7 | 18600   | 3. 27. 55,7 | 175,2 | 22600   | 5. 9. 43,7  | 114,6 |
| 14700   | 1. 39. 55,2 | 142,7 | 18700   | 3. 30. 50,9 | 174,8 | 22700   | 5. 11. 38,3 | 112,2 |
| 14800   | 1. 42. 17,9 | 144,6 | 18800   | 3. 33. 45,7 | 174,4 | 22800   | 5. 13. 30,5 | 109,9 |
| 14900   | 1. 44. 42,5 | 146,3 | 18900   | 3. 36. 40,1 | 174,0 | 22900   | 5. 15. 20,4 | 107,2 |
| 15000   | 1. 47. 8,8  | 148,2 | 19000   | 3. 39. 34,1 | 173,2 | 23000   | 5. 17. 7,6  | 104,6 |
| 15100   | 1. 49. 37,0 | 150,0 | 19100   | 3. 42. 27,3 | 172,6 | 23100   | 5. 18. 52,2 | 102,2 |
| 15200   | 1. 52. 7,0  | 151,8 | 19200   | 3. 45. 19,9 | 171,9 | 23200   | 5. 20. 34,4 | 99,5  |
| 15300   | 1. 54. 38,8 | 153,4 | 19300   | 3. 48. 11,8 | 171,1 | 23300   | 5. 22. 13,9 | 96,8  |
| 15400   | 1. 57. 12,2 | 155,2 | 19400   | 3. 51. 2,9  | 170,2 | 23400   | 5. 23. 50,7 | 94,2  |
| 15500   | 1. 59. 47,4 | 156,4 | 19500   | 3. 53. 53,1 | 169,4 | 23500   | 5. 25. 24,9 | 91,5  |
| 15600   | 2. 2. 23,8  | 158,0 | 19600   | 3. 56. 42,5 | 168,3 | 23600   | 5. 26. 56,4 | 88,7  |
| 15700   | 2. 5. 1,8   | 159,4 | 19700   | 3. 59. 30,8 | 167,3 | 23700   | 5. 28. 25,1 | 86,0  |
| 15800   | 2. 7. 41,2  | 161,0 | 19800   | 4. 2. 18,1  | 166,2 | 23800   | 5. 29. 51,1 | 83,5  |
| 15900   | 2. 10. 22,2 | 162,4 | 19900   | 4. 5. 4,3   | 165,0 | 23900   | 5. 31. 14,6 | 80,5  |
| 16000   | 2. 13. 4,6  |       | 20000   | 4. 7. 49,3  |       | 24000   | 5. 32. 35,1 |       |



TABLE XXX. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff.                                |       | Arg. A. | Equation A. |      |                                           | Diff. |    | Arg. A. | Equation A. |                                           |    | Diff. |
|---------|-------------|-----|------|--------------------------------------|-------|---------|-------------|------|-------------------------------------------|-------|----|---------|-------------|-------------------------------------------|----|-------|
|         | H.          | M.  | S.   |                                      |       |         | H.          | M.   | S.                                        |       |    |         | H.          | M.                                        | S. |       |
| 24000   | 5.          | 32. | 35,1 | 77,7<br>75,1<br>71,7<br>69,4<br>66,8 | 28000 | 5.      | 46.         | 51,4 | 37,1<br>40,0<br>42,3<br>45,1<br>47,8      | 32000 | 4. | 51.     | 9,2         | 124,7<br>126,1<br>127,4<br>128,8<br>130,4 |    |       |
| 24100   | 5.          | 33. | 52,8 |                                      | 28100 | 5.      | 46.         | 14,3 |                                           | 32100 | 4. | 49.     | 4,5         |                                           |    |       |
| 24200   | 5.          | 35. | 7,9  |                                      | 28200 | 5.      | 45.         | 34,3 |                                           | 32200 | 4. | 46.     | 58,4        |                                           |    |       |
| 24300   | 5.          | 36. | 19,6 |                                      | 28300 | 5.      | 44.         | 52,0 |                                           | 32300 | 4. | 44.     | 51,0        |                                           |    |       |
| 24400   | 5.          | 37. | 29,0 |                                      | 28400 | 5.      | 44.         | 6,9  |                                           | 32400 | 4. | 42.     | 42,2        |                                           |    |       |
| 24500   | 5.          | 38. | 35,8 | 63,5<br>60,8<br>57,8<br>55,0<br>51,9 | 28500 | 5.      | 43.         | 19,1 | 50,4<br>53,1<br>55,4<br>58,1<br>60,6      | 32500 | 4. | 40.     | 31,8        | 131,8<br>133,2<br>134,2<br>135,9<br>136,9 |    |       |
| 24600   | 5.          | 39. | 39,3 |                                      | 28600 | 5.      | 42.         | 28,7 |                                           | 32600 | 4. | 38.     | 20,0        |                                           |    |       |
| 24700   | 5.          | 40. | 40,1 |                                      | 28700 | 5.      | 41.         | 35,6 |                                           | 32700 | 4. | 36.     | 6,8         |                                           |    |       |
| 24800   | 5.          | 41. | 37,9 |                                      | 28800 | 5.      | 40.         | 40,2 |                                           | 32800 | 4. | 33.     | 52,6        |                                           |    |       |
| 24900   | 5.          | 42. | 32,9 |                                      | 28900 | 5.      | 39.         | 42,1 |                                           | 32900 | 4. | 31.     | 36,7        |                                           |    |       |
| 25000   | 5.          | 43. | 24,8 | 49,2<br>46,1<br>43,3<br>40,5<br>37,3 | 29000 | 5.      | 38.         | 41,5 | 63,0<br>65,6<br>68,0<br>70,4<br>72,9      | 33000 | 4. | 29.     | 19,8        | 138,3<br>139,3<br>140,4<br>141,6<br>142,3 |    |       |
| 25100   | 5.          | 44. | 14,0 |                                      | 29100 | 5.      | 37.         | 38,5 |                                           | 33100 | 4. | 27.     | 1,5         |                                           |    |       |
| 25200   | 5.          | 45. | 0,1  |                                      | 29200 | 5.      | 36.         | 32,9 |                                           | 33200 | 4. | 24.     | 42,2        |                                           |    |       |
| 25300   | 5.          | 45. | 43,4 |                                      | 29300 | 5.      | 35.         | 24,9 |                                           | 33300 | 4. | 22.     | 21,8        |                                           |    |       |
| 25400   | 5.          | 46. | 23,9 |                                      | 29400 | 5.      | 34.         | 14,5 |                                           | 33400 | 4. | 20.     | 0,2         |                                           |    |       |
| 25500   | 5.          | 47. | 1,2  | 34,2<br>31,7<br>28,7<br>25,6<br>22,6 | 29500 | 5.      | 33.         | 1,6  | 75,2<br>77,5<br>79,8<br>82,2<br>84,4      | 33500 | 4. | 17.     | 37,9        | 143,7<br>144,7<br>145,6<br>146,4<br>147,3 |    |       |
| 25600   | 5.          | 47. | 35,4 |                                      | 29600 | 5.      | 31.         | 46,4 |                                           | 33600 | 4. | 15.     | 14,2        |                                           |    |       |
| 25700   | 5.          | 48. | 7,1  |                                      | 29700 | 5.      | 30.         | 28,9 |                                           | 33700 | 4. | 12.     | 49,5        |                                           |    |       |
| 25800   | 5.          | 48. | 35,8 |                                      | 29800 | 5.      | 29.         | 9,1  |                                           | 33800 | 4. | 10.     | 23,9        |                                           |    |       |
| 25900   | 5.          | 49. | 1,4  |                                      | 29900 | 5.      | 27.         | 46,9 |                                           | 33900 | 4. | 7.      | 57,5        |                                           |    |       |
| 26000   | 5.          | 49. | 24,0 | 19,8<br>16,8<br>14,1<br>10,9<br>8,1  | 30000 | 5.      | 26.         | 22,5 | 86,4<br>88,8<br>91,1<br>93,1<br>95,3      | 34000 | 4. | 5.      | 30,2        | 148,3<br>148,9<br>149,6<br>150,4<br>151,0 |    |       |
| 26100   | 5.          | 49. | 43,8 |                                      | 30100 | 5.      | 24.         | 56,1 |                                           | 34100 | 4. | 3.      | 1,9         |                                           |    |       |
| 26200   | 5.          | 50. | 0,6  |                                      | 30200 | 5.      | 23.         | 27,3 |                                           | 34200 | 4. | 0.      | 33,0        |                                           |    |       |
| 26300   | 5.          | 50. | 14,7 |                                      | 30300 | 5.      | 21.         | 56,2 |                                           | 34300 | 3. | 58.     | 3,4         |                                           |    |       |
| 26400   | 5.          | 50. | 25,6 |                                      | 30400 | 5.      | 20.         | 23,1 |                                           | 34400 | 3. | 55.     | 33,0        |                                           |    |       |
| 26500   | 5.          | 50. | 33,7 | 5,1<br>2,3<br>0,6<br>3,4<br>6,5      | 30500 | 5.      | 18.         | 47,8 | 97,2<br>99,4<br>101,2<br>103,3<br>105,3   | 34500 | 3. | 53.     | 2,0         | 151,6<br>152,3<br>152,8<br>153,2<br>153,8 |    |       |
| 26600   | 5.          | 50. | 38,8 |                                      | 30600 | 5.      | 17.         | 10,6 |                                           | 34600 | 3. | 50.     | 30,4        |                                           |    |       |
| 26700   | 5.          | 50. | 41,1 |                                      | 30700 | 5.      | 15.         | 31,2 |                                           | 34700 | 3. | 47.     | 58,1        |                                           |    |       |
| 26800   | 5.          | 50. | 40,5 |                                      | 30800 | 5.      | 13.         | 50,0 |                                           | 34800 | 3. | 45.     | 25,3        |                                           |    |       |
| 26900   | 5.          | 50. | 37,1 |                                      | 30900 | 5.      | 12.         | 6,7  |                                           | 34900 | 3. | 42.     | 52,1        |                                           |    |       |
| 27000   | 5.          | 50. | 30,6 | 9,2<br>12,0<br>15,1<br>17,7<br>20,6  | 31000 | 5.      | 10.         | 21,4 | 107,2<br>109,1<br>110,9<br>112,7<br>114,5 | 35000 | 3. | 40.     | 18,3        | 154,2<br>154,5<br>155,1<br>155,1<br>155,6 |    |       |
| 27100   | 5.          | 50. | 21,4 |                                      | 31100 | 5.      | 8.          | 34,2 |                                           | 35100 | 3. | 37.     | 44,1        |                                           |    |       |
| 27200   | 5.          | 50. | 9,4  |                                      | 31200 | 5.      | 6.          | 45,1 |                                           | 35200 | 3. | 35.     | 9,6         |                                           |    |       |
| 27300   | 5.          | 49. | 54,3 |                                      | 31300 | 5.      | 4.          | 54,2 |                                           | 35300 | 3. | 32.     | 34,5        |                                           |    |       |
| 27400   | 5.          | 49. | 36,6 |                                      | 31400 | 5.      | 3.          | 1,5  |                                           | 35400 | 3. | 29.     | 59,4        |                                           |    |       |
| 27500   | 5.          | 49. | 16,0 | 23,2<br>26,1<br>29,0<br>31,8<br>34,5 | 31500 | 5.      | 1.          | 7,0  | 116,2<br>117,5<br>119,7<br>121,3<br>122,7 | 35500 | 3. | 27.     | 23,8        | 155,7<br>156,1<br>156,2<br>156,4<br>156,4 |    |       |
| 27600   | 5.          | 48. | 52,8 |                                      | 31600 | 4.      | 59.         | 10,8 |                                           | 35600 | 3. | 24.     | 48,1        |                                           |    |       |
| 27700   | 5.          | 48. | 26,7 |                                      | 31700 | 4.      | 57.         | 12,9 |                                           | 35700 | 3. | 22.     | 12,0        |                                           |    |       |
| 27800   | 5.          | 47. | 57,7 |                                      | 31800 | 4.      | 55.         | 13,2 |                                           | 35800 | 3. | 19.     | 35,8        |                                           |    |       |
| 27900   | 5.          | 47. | 25,9 |                                      | 31900 | 4.      | 53.         | 11,9 |                                           | 35900 | 3. | 16.     | 59,4        |                                           |    |       |
| 28000   | 5.          | 46. | 51,4 |                                      | 32000 | 4.      | 51.         | 9,2  |                                           | 36000 | 3. | 14.     | 23,0        |                                           |    |       |



TABLE XXXI. EQUATION C.

| ARG. | Equat.  | Diff. | ARG. | Equat.  | Diff. | ARG. | Equat.  | Diff. |
|------|---------|-------|------|---------|-------|------|---------|-------|
| C.   | M. S.   | SEC.  | C.   | M. S.   | SEC.  | C.   | M. S.   | SEC.  |
| 0    | 0. 36,8 | 3,7   | 340  | 1. 12,6 | 0,8   | 670  | 0. 2,2  | 1,6   |
| 10   | 0. 33,1 | 3,7   | 350  | 1. 13,4 | 0,2   | 680  | 0. 3,8  | 2,0   |
| 20   | 0. 29,4 | 3,6   | 360  | 1. 13,6 | 0,2   | 690  | 0. 5,8  | 2,5   |
| 30   | 0. 25,8 | 3,3   | 370  | 1. 13,4 | 0,7   | 700  | 0. 8,3  | 2,9   |
| 40   | 0. 22,5 | 3,1   | 380  | 1. 12,7 | 1,1   | 710  | 0. 11,2 | 3,2   |
| 50   | 0. 19,4 | 2,7   | 390  | 1. 11,6 | 1,7   | 720  | 0. 14,4 | 3,4   |
| 60   | 0. 16,7 | 2,2   | 400  | 1. 9,9  | 2,1   | 730  | 0. 17,8 | 3,7   |
| 70   | 0. 14,5 | 1,9   | 410  | 1. 7,8  | 2,4   | 740  | 0. 21,5 | 3,9   |
| 80   | 0. 12,6 | 1,4   | 420  | 1. 5,4  | 2,7   | 750  | 0. 25,4 | 4,0   |
| 90   | 0. 11,2 | 0,9   | 430  | 1. 2,7  | 3,0   | 760  | 0. 29,4 | 4,1   |
| 100  | 0. 10,3 | 0,3   | 440  | 0. 59,7 | 3,4   | 770  | 0. 33,5 | 3,9   |
| 110  | 0. 10,0 | 0,1   | 450  | 0. 56,3 | 3,6   | 780  | 0. 37,4 | 3,9   |
| 120  | 0. 10,1 | 0,7   | 460  | 0. 52,7 | 3,9   | 790  | 0. 41,3 | 3,8   |
| 130  | 0. 10,8 | 1,2   | 470  | 0. 48,8 | 3,9   | 800  | 0. 45,1 | 3,7   |
| 140  | 0. 12,0 | 1,8   | 480  | 0. 44,9 | 4,0   | 810  | 0. 48,8 | 3,4   |
| 150  | 0. 13,8 | 2,2   | 490  | 0. 40,9 | 4,1   | 820  | 0. 52,2 | 3,0   |
| 160  | 0. 16,0 | 2,6   | 500  | 0. 36,8 | 4,1   | 830  | 0. 55,2 | 2,4   |
| 170  | 0. 18,6 | 3,0   | 510  | 0. 32,7 | 4,0   | 840  | 0. 57,6 | 2,2   |
| 180  | 0. 21,6 | 3,3   | 520  | 0. 28,7 | 3,9   | 850  | 0. 59,8 | 1,8   |
| 190  | 0. 24,9 | 3,6   | 530  | 0. 24,8 | 3,8   | 860  | 1. 1,6  | 1,2   |
| 200  | 0. 28,5 | 3,9   | 540  | 0. 21,0 | 3,6   | 870  | 1. 2,8  | 0,7   |
| 210  | 0. 32,4 | 3,9   | 550  | 0. 17,4 | 3,5   | 880  | 1. 3,5  | 0,1   |
| 220  | 0. 36,3 | 3,9   | 560  | 0. 13,9 | 3,0   | 890  | 1. 3,6  | 0,3   |
| 230  | 0. 40,2 | 4,0   | 570  | 0. 10,9 | 2,7   | 900  | 1. 3,3  | 0,9   |
| 240  | 0. 44,2 | 4,0   | 580  | 0. 8,2  | 2,4   | 910  | 1. 2,4  | 1,4   |
| 250  | 0. 48,2 | 3,9   | 590  | 0. 5,8  | 2,1   | 920  | 1. 1,0  | 1,9   |
| 260  | 0. 52,1 | 3,7   | 600  | 0. 3,7  | 1,7   | 930  | 0. 59,1 | 2,2   |
| 270  | 0. 55,8 | 3,4   | 610  | 0. 2,0  | 1,1   | 940  | 0. 56,9 | 2,7   |
| 280  | 0. 59,2 | 3,2   | 620  | 0. 0,9  | 0,7   | 950  | 0. 54,2 | 3,1   |
| 290  | 1. 2,4  | 2,9   | 630  | 0. 0,2  | 0,2   | 960  | 0. 51,1 | 3,3   |
| 300  | 1. 5,3  | 2,5   | 640  | 0. 0,0  | 0,2   | 970  | 0. 47,8 | 3,6   |
| 310  | 1. 7,8  | 2,0   | 650  | 0. 0,2  | 0,8   | 980  | 0. 44,2 | 3,7   |
| 320  | 1. 9,8  | 1,6   | 660  | 0. 1,0  | 1,2   | 990  | 0. 40,5 | 3,7   |
| 330  | 1. 11,4 | 1,2   | 670  | 0. 2,2  |       | 1000 | 0. 36,8 |       |
| 340  | 1. 12,6 |       |      |         |       |      |         |       |







TABLE XXXIII. EQUATIONS D, E, F and G.

| Arg. D, E,<br>F and G. |     | Equat.<br>D |      | Diff. | Equat.<br>E |      | Diff. | Equat.<br>F |      | Diff. | Equat.<br>G |      | Diff. |
|------------------------|-----|-------------|------|-------|-------------|------|-------|-------------|------|-------|-------------|------|-------|
|                        |     | M.          | S.   |       | M.          | S.   |       | M.          | S.   |       | M.          | S.   |       |
| 750                    | 750 | 0.          | 0,0  |       | 0.          | 0,0  |       | 0.          | 0,0  |       | 0.          | 0,0  |       |
| 760                    | 740 | 0.          | 0,5  | 0,5   | 0.          | 0,3  | 0,3   | 0.          | 0,0  | 0,0   | 0.          | 0,0  | 0,0   |
| 770                    | 730 | 0.          | 2,0  | 1,5   | 0.          | 1,1  | 0,8   | 0.          | 0,1  | 0,1   | 0.          | 0,1  | 0,1   |
| 780                    | 720 | 0.          | 4,6  | 2,6   | 0.          | 2,6  | 1,5   | 0.          | 0,3  | 0,2   | 0.          | 0,2  | 0,1   |
|                        |     |             |      | 3,7   |             |      | 2,0   |             |      | 0,2   |             |      | 0,1   |
| 790                    | 710 | 0.          | 8,3  | 4,6   | 0.          | 4,6  | 2,6   | 0.          | 0,5  | 0,2   | 0.          | 0,3  | 0,2   |
| 800                    | 700 | 0.          | 12,9 | 5,6   | 0.          | 7,2  | 3,1   | 0.          | 0,7  | 0,3   | 0.          | 0,5  | 0,2   |
| 810                    | 690 | 0.          | 18,5 | 6,6   | 0.          | 10,3 | 3,7   | 0.          | 1,0  | 0,4   | 0.          | 0,7  | 0,2   |
| 820                    | 680 | 0.          | 25,1 | 7,6   | 0.          | 14,0 | 4,2   | 0.          | 1,4  | 0,4   | 0.          | 0,9  | 0,2   |
|                        |     |             |      | 8,5   |             |      | 4,7   |             |      | 0,5   |             |      | 0,3   |
| 830                    | 670 | 0.          | 32,7 | 9,3   | 0.          | 18,2 | 5,2   | 0.          | 1,8  | 0,5   | 0.          | 1,1  | 0,3   |
| 840                    | 660 | 0.          | 41,2 | 10,2  | 0.          | 22,9 | 5,7   | 0.          | 2,3  | 0,6   | 0.          | 1,4  | 0,3   |
| 850                    | 650 | 0.          | 50,5 | 11,0  | 0.          | 28,1 | 6,1   | 0.          | 2,8  | 0,7   | 0.          | 1,7  | 0,4   |
| 860                    | 640 | 1.          | 0,7  | 11,7  | 0.          | 33,8 | 6,5   | 0.          | 3,4  | 0,7   | 0.          | 2,1  | 0,3   |
|                        |     |             |      | 12,5  |             |      | 6,9   |             |      | 0,6   |             |      | 0,4   |
| 870                    | 630 | 1.          | 11,7 | 13,1  | 0.          | 39,9 | 7,3   | 0.          | 4,1  | 0,8   | 0.          | 2,4  | 0,4   |
| 880                    | 620 | 1.          | 23,4 | 13,7  | 0.          | 46,4 | 7,7   | 0.          | 4,7  | 0,8   | 0.          | 2,8  | 0,4   |
| 890                    | 610 | 1.          | 35,9 | 14,4  | 0.          | 53,3 | 8,3   | 0.          | 5,4  | 0,9   | 0.          | 3,2  | 0,4   |
| 900                    | 600 | 1.          | 49,0 | 15,2  | 1.          | 0,6  | 8,4   | 0.          | 6,2  | 0,9   | 0.          | 3,6  | 0,5   |
|                        |     |             |      | 15,6  |             |      | 8,7   |             |      | 0,9   |             |      | 0,5   |
| 910                    | 590 | 2.          | 2,7  | 16,0  | 1.          | 8,3  | 8,9   | 0.          | 7,0  | 0,9   | 0.          | 4,1  | 0,5   |
| 920                    | 580 | 2.          | 17,1 | 16,2  | 1.          | 16,2 | 9,0   | 0.          | 7,8  | 0,9   | 0.          | 4,6  | 0,5   |
| 930                    | 570 | 2.          | 31,9 | 16,4  | 1.          | 24,5 | 9,2   | 0.          | 8,6  | 0,9   | 0.          | 5,0  | 0,5   |
| 940                    | 560 | 2.          | 47,1 | 16,6  | 1.          | 32,9 | 9,2   | 0.          | 9,5  | 0,9   | 0.          | 5,5  | 0,6   |
|                        |     |             |      | 16,6  |             |      | 9,2   |             |      | 0,9   |             |      | 0,5   |
| 950                    | 550 | 3.          | 2,7  | 16,6  | 1.          | 41,6 | 9,2   | 0.          | 10,4 | 0,9   | 0.          | 6,1  | 0,5   |
| 960                    | 540 | 3.          | 18,7 | 16,6  | 1.          | 50,5 | 9,2   | 0.          | 11,3 | 0,9   | 0.          | 6,6  | 0,5   |
| 970                    | 530 | 3.          | 34,9 | 16,6  | 1.          | 59,5 | 9,2   | 0.          | 12,2 | 0,9   | 0.          | 7,2  | 0,5   |
| 980                    | 520 | 3.          | 51,3 | 16,6  | 2.          | 8,7  | 9,2   | 0.          | 13,1 | 0,9   | 0.          | 7,7  | 0,5   |
|                        |     |             |      | 16,6  |             |      | 9,2   |             |      | 0,9   |             |      | 0,5   |
| 990                    | 510 | 4.          | 7,9  | 16,6  | 2.          | 17,9 | 9,2   | 0.          | 14,0 | 1,0   | 0.          | 8,2  | 0,6   |
| 0                      | 500 | 4.          | 24,5 | 16,6  | 2.          | 27,1 | 9,2   | 0.          | 15,0 | 1,0   | 0.          | 8,8  | 0,6   |
| 10                     | 490 | 4.          | 41,1 | 16,6  | 2.          | 36,3 | 9,2   | 0.          | 16,0 | 0,9   | 0.          | 9,4  | 0,5   |
| 20                     | 480 | 4.          | 57,7 | 16,4  | 2.          | 45,5 | 9,2   | 0.          | 16,9 | 0,9   | 0.          | 9,9  | 0,5   |
|                        |     |             |      | 16,2  |             |      | 9,0   |             |      | 0,9   |             |      | 0,6   |
| 30                     | 470 | 5.          | 14,1 | 16,0  | 2.          | 54,7 | 8,9   | 0.          | 17,8 | 0,9   | 0.          | 10,4 | 0,5   |
| 40                     | 460 | 5.          | 30,3 | 15,6  | 3.          | 3,7  | 8,7   | 0.          | 18,7 | 0,9   | 0.          | 11,0 | 0,6   |
| 50                     | 450 | 5.          | 46,3 | 15,2  | 3.          | 12,6 | 8,4   | 0.          | 19,6 | 0,9   | 0.          | 11,5 | 0,5   |
| 60                     | 440 | 6.          | 1,9  | 14,8  | 3.          | 21,3 | 8,3   | 0.          | 20,5 | 0,8   | 0.          | 12,1 | 0,5   |
|                        |     |             |      | 14,4  |             |      | 8,3   |             |      | 0,8   |             |      | 0,4   |
| 70                     | 430 | 6.          | 17,1 | 13,7  | 3.          | 29,7 | 7,9   | 0.          | 21,4 | 0,8   | 0.          | 12,6 | 0,5   |
| 80                     | 420 | 6.          | 31,9 | 13,1  | 3.          | 38,0 | 7,7   | 0.          | 22,2 | 0,8   | 0.          | 13,0 | 0,5   |
| 90                     | 410 | 6.          | 46,3 | 12,5  | 3.          | 45,9 | 7,3   | 0.          | 23,0 | 0,6   | 0.          | 13,5 | 0,4   |
| 100                    | 400 | 7.          | 0,0  | 11,7  | 3.          | 53,6 | 6,9   | 0.          | 23,8 | 0,6   | 0.          | 14,0 | 0,4   |
|                        |     |             |      | 11,7  |             |      | 6,5   |             |      | 0,6   |             |      | 0,4   |
| 110                    | 390 | 7.          | 13,1 |       | 4.          | 0,9  |       | 0.          | 24,6 |       | 0.          | 14,4 |       |
| 120                    | 380 | 7.          | 25,6 |       | 4.          | 7,8  |       | 0.          | 25,3 |       | 0.          | 14,8 |       |
| 130                    | 370 | 7.          | 37,3 |       | 4.          | 14,3 |       | 0.          | 25,9 |       | 0.          | 15,2 |       |







TABLE XXXV. REDUCTION H+K.

| Arg. H+K. |      | Red.<br>H+K | Diff. | Arg. H+K. |      | Red.<br>H+K | Diff. | Arg. H+K. |      | Red.<br>H+K | Diff. |
|-----------|------|-------------|-------|-----------|------|-------------|-------|-----------|------|-------------|-------|
|           |      | SEC.        | SEC.  |           |      | SEC.        | SEC.  |           |      | SEC.        | SEC.  |
| 7500      | 7500 | 0,0         | 0,1   | 9200      | 5800 | 6,2         | 0,7   | 900       | 4100 | 18,4        | 0,6   |
| 7600      | 7400 | 0,1         | 0,0   | 9300      | 5700 | 6,9         | 0,7   | 1000      | 4000 | 19,0        | 0,6   |
| 7700      | 7300 | 0,1         | 0,1   | 9400      | 5600 | 7,6         | 0,7   | 1100      | 3900 | 19,6        | 0,6   |
| 7800      | 7200 | 0,2         | 0,2   | 9500      | 5500 | 8,3         | 0,7   | 1200      | 3800 | 20,2        | 0,6   |
|           |      |             |       |           |      |             |       |           |      |             | 0,5   |
| 7900      | 7100 | 0,4         | 0,2   | 9600      | 5400 | 9,0         | 0,7   | 1300      | 3700 | 20,7        | 0,5   |
| 8000      | 7000 | 0,6         | 0,3   | 9700      | 5300 | 9,7         | 0,8   | 1400      | 3600 | 21,2        | 0,5   |
| 8100      | 6900 | 0,9         | 0,3   | 9800      | 5200 | 10,5        | 0,7   | 1500      | 3500 | 21,7        | 0,4   |
| 8200      | 6800 | 1,2         | 0,3   | 9900      | 5100 | 11,2        | 0,8   | 1600      | 3400 | 22,1        | 0,4   |
|           |      |             |       |           |      |             |       |           |      |             | 0,3   |
| 8300      | 6700 | 1,5         | 0,4   | 0         | 5000 | 12,0        | 0,8   | 1700      | 3300 | 22,5        | 0,3   |
| 8400      | 6600 | 1,9         | 0,4   | 100       | 4900 | 12,8        | 0,7   | 1800      | 3200 | 22,8        | 0,3   |
| 8500      | 6500 | 2,3         | 0,5   | 200       | 4800 | 13,5        | 0,8   | 1900      | 3100 | 23,1        | 0,3   |
| 8600      | 6400 | 2,8         | 0,5   | 300       | 4700 | 14,3        | 0,7   | 2000      | 3000 | 23,4        | 0,2   |
|           |      |             |       |           |      |             |       |           |      |             | 0,2   |
| 8700      | 6300 | 3,3         | 0,5   | 400       | 4600 | 15,0        | 0,7   | 2100      | 2900 | 23,6        | 0,1   |
| 8800      | 6200 | 3,8         | 0,6   | 500       | 4500 | 15,7        | 0,7   | 2200      | 2800 | 23,8        | 0,0   |
| 8900      | 6100 | 4,4         | 0,6   | 600       | 4400 | 16,4        | 0,7   | 2300      | 2700 | 23,9        | 0,1   |
| 9000      | 6000 | 5,0         | 0,6   | 700       | 4300 | 17,1        | 0,7   | 2400      | 2600 | 23,9        | 0,1   |
|           |      |             |       |           |      |             |       |           |      |             |       |
| 9100      | 5900 | 5,6         | 0,6   | 800       | 4200 | 17,8        | 0,6   | 2500      | 2500 | 24,0        |       |
| 9200      | 5800 | 6,2         | 0,6   | 900       | 4100 | 18,4        |       |           |      |             |       |

TABLE XXXVI. The Numbers H, I, K, and L; of which the Sum M is the Argument of the Semi-duration.

| ARGUMENT<br>H, I, K, L. |      | Number<br>H | Diff. | Number<br>I | Diff. | Number<br>K | Diff. | Number<br>L | Diff. |
|-------------------------|------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| 7500                    | 7500 | 0,05818     |       | 0,02222     |       | 0,11650     |       | 0,00000     |       |
| 7600                    | 7400 | 0,05989     | 171   | 0,02220     | 2     | 0,11638     | 12    | 0,00001     | 1     |
| 7700                    | 7300 | 0,06501     | 512   | 0,02213     | 7     | 0,11604     | 34    | 0,00004     | 3     |
| 7800                    | 7200 | 0,07354     | 853   | 0,02202     | 11    | 0,11546     | 58    | 0,00009     | 5     |
|                         |      |             | 1188  |             | 15    |             | 79    |             | 7     |
| 7900                    | 7100 | 0,08542     | 1520  | 0,02187     | 19    | 0,11467     | 102   | 0,00016     | 9     |
| 8000                    | 7000 | 0,10062     | 1846  | 0,02168     | 23    | 0,11365     | 225   | 0,00025     | 11    |
| 8100                    | 6900 | 0,11908     | 2204  | 0,02145     | 29    | 0,11240     | 145   | 0,00036     | 13    |
| 8200                    | 6800 | 0,14112     | 2433  | 0,02116     | 32    | 0,11095     | 166   | 0,00049     | 15    |
|                         |      |             | 2774  |             | 35    |             | 186   |             | 17    |
| 8300                    | 6700 | 0,16545     | 3062  | 0,02084     | 39    | 0,10929     | 206   | 0,00064     | 18    |
| 8400                    | 6600 | 0,19319     | 3339  | 0,02049     | 43    | 0,10743     | 224   | 0,00081     | 20    |
| 8500                    | 6500 | 0,22381     | 3603  | 0,02010     | 46    | 0,10537     | 242   | 0,00099     | 22    |
| 8600                    | 6400 | 0,25720     | 3853  | 0,01967     | 49    | 0,10313     | 259   | 0,00119     | 23    |
|                         |      |             |       |             |       |             |       |             |       |
| 8700                    | 6300 | 0,29323     |       | 0,01921     |       | 0,10071     |       | 0,00141     |       |
| 8800                    | 6200 | 0,33176     |       | 0,01872     |       | 0,09812     |       | 0,00164     |       |



TABLE XXXVI. The Numbers H, I, K, and L; of which the Sum M is the Argument of the Semi-duration.

| ARGUMENT<br>H, I, K, L. |      | Number<br>H | Diff. | Number<br>I | Diff. | Number<br>K | Diff. | Number<br>L | Diff. |
|-------------------------|------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| 8800                    | 6200 | 0,33176     | 4087  | 0,01872     | 53    | 0,09812     | 274   | 0,00164     | 24    |
| 8900                    | 6100 | 0,37263     | 4305  | 0,01819     | 55    | 0,09538     | 289   | 0,00188     | 26    |
| 9000                    | 6000 | 0,41568     | 4506  | 0,01764     | 58    | 0,09249     | 303   | 0,00214     | 27    |
| 9100                    | 5900 | 0,46074     | 4690  | 0,01706     | 60    | 0,08946     | 315   | 0,00241     | 28    |
| 9200                    | 5800 | 0,50764     | 4854  | 0,01646     | 62    | 0,08631     | 326   | 0,00269     | 29    |
| 9300                    | 5700 | 0,55618     | 5001  | 0,01584     | 64    | 0,08305     | 336   | 0,00298     | 30    |
| 9400                    | 5600 | 0,60619     | 5126  | 0,01520     | 66    | 0,07969     | 344   | 0,00328     | 31    |
| 9500                    | 5500 | 0,65745     | 5232  | 0,01454     | 67    | 0,07625     | 352   | 0,00359     | 31    |
| 9600                    | 5400 | 0,70977     | 5317  | 0,01387     | 68    | 0,07273     | 356   | 0,00390     | 32    |
| 9700                    | 5300 | 0,76294     | 5381  | 0,01319     | 69    | 0,06917     | 362   | 0,00422     | 32    |
| 9800                    | 5200 | 0,81675     | 5424  | 0,01250     | 69    | 0,06555     | 364   | 0,00454     | 32    |
| 9900                    | 5100 | 0,87099     | 5446  | 0,01181     | 70    | 0,06191     | 366   | 0,00486     | 33    |
| 0                       | 5000 | 0,92545     | 5446  | 0,01111     | 70    | 0,05825     | 366   | 0,00519     | 33    |
| 100                     | 4900 | 0,97991     | 5424  | 0,01041     | 69    | 0,05459     | 364   | 0,00552     | 32    |
| 200                     | 4800 | 1,03415     | 5381  | 0,00972     | 69    | 0,05095     | 362   | 0,00584     | 32    |
| 300                     | 4700 | 1,08796     | 5317  | 0,00903     | 68    | 0,04733     | 356   | 0,00616     | 32    |
| 400                     | 4600 | 1,14113     | 5232  | 0,00835     | 67    | 0,04377     | 352   | 0,00648     | 31    |
| 500                     | 4500 | 1,19345     | 5126  | 0,00768     | 66    | 0,04025     | 344   | 0,00679     | 31    |
| 600                     | 4400 | 1,24471     | 5001  | 0,00702     | 64    | 0,03681     | 336   | 0,00710     | 30    |
| 700                     | 4300 | 1,29472     | 4854  | 0,00638     | 62    | 0,03345     | 326   | 0,00740     | 29    |
| 800                     | 4200 | 1,34326     | 4690  | 0,00576     | 60    | 0,03019     | 315   | 0,00769     | 28    |
| 900                     | 4100 | 1,39016     | 4506  | 0,00516     | 58    | 0,02704     | 303   | 0,00797     | 27    |
| 1000                    | 4000 | 1,43522     | 4305  | 0,00458     | 55    | 0,02401     | 289   | 0,00824     | 26    |
| 1100                    | 3900 | 1,47827     | 4087  | 0,00403     | 53    | 0,02112     | 274   | 0,00850     | 24    |
| 1200                    | 3800 | 1,51914     | 3853  | 0,00350     | 49    | 0,01838     | 259   | 0,00874     | 23    |
| 1300                    | 3700 | 1,55767     | 3603  | 0,00301     | 46    | 0,01579     | 242   | 0,00897     | 22    |
| 1400                    | 3600 | 1,59370     | 3339  | 0,00255     | 43    | 0,01337     | 224   | 0,00919     | 20    |
| 1500                    | 3500 | 1,62709     | 3062  | 0,00212     | 39    | 0,01113     | 206   | 0,00939     | 18    |
| 1600                    | 3400 | 1,65771     | 2774  | 0,00173     | 35    | 0,00907     | 186   | 0,00957     | 17    |
| 1700                    | 3300 | 1,68545     | 2433  | 0,00138     | 32    | 0,00721     | 166   | 0,00974     | 15    |
| 1800                    | 3200 | 1,70978     | 2204  | 0,00106     | 29    | 0,00555     | 145   | 0,00989     | 13    |
| 1900                    | 3100 | 1,73182     | 1846  | 0,00077     | 23    | 0,00410     | 125   | 0,01002     | 11    |
| 2000                    | 3000 | 1,75028     | 1520  | 0,00054     | 19    | 0,00285     | 102   | 0,01013     | 9     |
| 2100                    | 2900 | 1,76548     | 1188  | 0,00035     | 15    | 0,00183     | 79    | 0,01022     | 7     |
| 2200                    | 2800 | 1,77736     | 853   | 0,00020     | 11    | 0,00104     | 58    | 0,01029     | 5     |
| 2300                    | 2700 | 1,78589     | 512   | 0,00009     | 7     | 0,00046     | 34    | 0,01034     | 3     |
| 2400                    | 2600 | 1,79101     | 171   | 0,00002     | 2     | 0,00012     | 12    | 0,01037     | 1     |
| 2500                    | 2500 | 1,79272     |       | 0,00000     |       | 0,00000     |       | 0,01038     |       |

The Number H is taken with the Argument H; and the same for the other Numbers, which are taken with their respective Arguments.



TABLE XXXVII. Semi-durations.

| ARGUMENT M. |         | Semi-durations. |      | Diff. | N     |
|-------------|---------|-----------------|------|-------|-------|
|             |         | H. M.           | S.   | SEC.  | +     |
| 1,00000     | 1,00000 | I. 47.          | 0,0  |       | 1,000 |
| 1,01000     | 0,99000 | I. 46.          | 59,7 | 0,3   | 1,000 |
| 1,02000     | 0,98000 | I. 46.          | 58,7 | 1,0   | 0,999 |
| 1,03000     | 0,97000 | I. 46.          | 57,1 | 1,6   | 0,999 |
|             |         |                 |      | 2,2   |       |
| 1,04000     | 0,96000 | I. 46.          | 54,9 | 2,9   | 0,998 |
| 1,05000     | 0,95000 | I. 46.          | 52,0 | 3,6   | 0,996 |
| 1,06000     | 0,94000 | I. 46.          | 48,4 | 4,1   | 0,995 |
| 1,07000     | 0,93000 | I. 46.          | 44,3 | 4,9   | 0,993 |
|             |         |                 |      | 5,5   |       |
| 1,08000     | 0,92000 | I. 46.          | 39,4 | 6,1   | 0,990 |
| 1,09000     | 0,91000 | I. 46.          | 33,9 | 6,8   | 0,988 |
| 1,10000     | 0,90000 | I. 46.          | 27,8 | 7,4   | 0,985 |
| 1,11000     | 0,89000 | I. 46.          | 21,0 | 8,1   | 0,982 |
|             |         |                 |      | 8,7   |       |
| 1,12000     | 0,88000 | I. 46.          | 13,6 | 9,4   | 0,978 |
| 1,13000     | 0,87000 | I. 46.          | 5,5  | 10,1  | 0,974 |
| 1,14000     | 0,86000 | I. 45.          | 56,8 | 10,7  | 0,970 |
| 1,15000     | 0,85000 | I. 45.          | 47,4 | 11,5  | 0,966 |
|             |         |                 |      | 12,0  |       |
| 1,16000     | 0,84000 | I. 45.          | 37,3 | 12,8  | 0,961 |
| 1,17000     | 0,83000 | I. 45.          | 26,6 | 13,5  | 0,956 |
| 1,18000     | 0,82000 | I. 45.          | 15,1 | 14,1  | 0,951 |
| 1,19000     | 0,81000 | I. 45.          | 3,1  | 14,8  | 0,945 |
|             |         |                 |      | 15,5  |       |
| 1,20000     | 0,80000 | I. 44.          | 50,3 | 16,3  | 0,939 |
| 1,21000     | 0,79000 | I. 44.          | 36,8 | 16,9  | 0,933 |
| 1,22000     | 0,78000 | I. 44.          | 22,7 | 17,6  | 0,926 |
| 1,23000     | 0,77000 | I. 44.          | 7,9  | 18,4  | 0,919 |
|             |         |                 |      | 19,1  |       |
| 1,24000     | 0,76000 | I. 43.          | 52,4 | 19,8  | 0,912 |
| 1,25000     | 0,75000 | I. 43.          | 36,1 | 20,6  | 0,904 |
| 1,26000     | 0,74000 | I. 43.          | 19,2 | 21,3  | 0,896 |
| 1,27000     | 0,73000 | I. 43.          | 1,6  | 22,1  | 0,887 |
|             |         |                 |      | 22,8  |       |
| 1,28000     | 0,72000 | I. 42.          | 43,2 | 23,6  | 0,878 |
| 1,29000     | 0,71000 | I. 42.          | 24,1 | 24,3  | 0,869 |
| 1,30000     | 0,70000 | I. 42.          | 4,3  | 25,2  | 0,860 |
| 1,31000     | 0,69000 | I. 41.          | 43,7 |       | 0,850 |
| 1,32000     | 0,68000 | I. 41.          | 22,4 |       | 0,839 |
|             |         |                 |      |       |       |
| 1,33000     | 0,67000 | I. 41.          | 0,3  |       | 0,829 |
| 1,34000     | 0,66000 | I. 40.          | 37,5 |       | 0,818 |
| 1,35000     | 0,65000 | I. 40.          | 13,9 |       | 0,806 |
| 1,36000     | 0,64000 | I. 39.          | 49,6 |       | 0,794 |
| 1,37000     | 0,63000 | I. 39.          | 24,4 |       | 0,782 |



TABLE XXXVII. Semi-durations.

| ARGUMENT M. |         | Semi-durations. | Diff. | N<br>± |
|-------------|---------|-----------------|-------|--------|
|             |         | H. M. S.        | SEC.  |        |
| 1,37000     | 0,63000 | 1. 39. 24,4     | 26,0  | +0,782 |
| 1,38000     | 0,62000 | 1. 38. 58,4     | 26,8  | 0,769  |
| 1,39000     | 0,61000 | 1. 38. 31,6     | 27,6  | 0,756  |
| 1,40000     | 0,60000 | 1. 38. 4,0      | 28,4  | 0,742  |
| 1,41000     | 0,59000 | 1. 37. 35,6     | 29,3  | 0,728  |
| 1,42000     | 0,58000 | 1. 37. 6,3      | 30,1  | 0,713  |
| 1,43000     | 0,57000 | 1. 36. 36,2     | 31,0  | 0,698  |
| 1,44000     | 0,56000 | 1. 36. 5,2      | 31,9  | 0,682  |
| 1,45000     | 0,55000 | 1. 35. 33,3     | 32,9  | 0,666  |
| 1,46000     | 0,54000 | 1. 35. 0,4      | 33,7  | 0,650  |
| 1,47000     | 0,53000 | 1. 34. 26,7     | 34,6  | 0,633  |
| 1,48000     | 0,52000 | 1. 33. 52,1     | 35,6  | 0,615  |
| 1,49000     | 0,51000 | 1. 33. 16,5     | 36,6  | 0,596  |
| 1,50000     | 0,50000 | 1. 32. 39,9     | 37,6  | 0,577  |
| 1,51000     | 0,49000 | 1. 32. 2,3      | 38,6  | 0,558  |
| 1,52000     | 0,48000 | 1. 31. 23,7     | 39,6  | 0,538  |
| 1,53000     | 0,47000 | 1. 30. 44,1     | 40,6  | 0,517  |
| 1,54000     | 0,46000 | 1. 30. 3,5      | 41,7  | 0,495  |
| 1,55000     | 0,45000 | 1. 29. 21,8     | 42,9  | 0,473  |
| 1,56000     | 0,44000 | 1. 28. 38,9     | 44,0  | 0,450  |
| 1,57000     | 0,43000 | 1. 27. 54,9     | 45,1  | 0,426  |
| 1,58000     | 0,42000 | 1. 27. 9,8      | 46,3  | 0,402  |
| 1,59000     | 0,41000 | 1. 26. 23,5     | 47,5  | 0,376  |
| 1,60000     | 0,40000 | 1. 25. 36,0     | 48,7  | 0,350  |
| 1,61000     | 0,39000 | 1. 24. 47,3     | 50,2  | 0,323  |
| 1,62000     | 0,38000 | 1. 23. 57,1     | 51,4  | 0,295  |
| 1,63000     | 0,37000 | 1. 23. 5,7      | 52,7  | 0,266  |
| 1,64000     | 0,36000 | 1. 22. 13,0     | 54,2  | 0,235  |
| 1,65000     | 0,35000 | 1. 21. 18,8     | 55,7  | 0,204  |
| 1,66000     | 0,34000 | 1. 20. 23,1     | 57,1  | 0,172  |
| 1,67000     | 0,33000 | 1. 19. 26,0     | 58,8  | 0,138  |
| 1,68000     | 0,32000 | 1. 18. 27,2     | 60,4  | 0,102  |
| 1,69000     | 0,31000 | 1. 17. 26,8     | 62,0  | 0,066  |
| 1,70000     | 0,30000 | 1. 16. 24,8     | 63,8  | +0,028 |
| 1,71000     | 0,29000 | 1. 15. 21,0     | 65,7  | -0,012 |
| 1,72000     | 0,28000 | 1. 14. 15,3     | 67,6  | 0,053  |
| 1,73000     | 0,27000 | 1. 13. 7,7      | 69,6  | 0,096  |
| 1,74000     | 0,26000 | 1. 11. 58,1     |       | 0,141  |

The Number N serves for the Correction of the Semi-durations.



TABLE XXXVII. Semi-durations.

| ARGUMENT M. |         | Semi-durations. | Diff. | N      |
|-------------|---------|-----------------|-------|--------|
|             |         | H. M. S.        | SEC.  | —      |
| 1,74000     | 0,26000 | 1. 11. 58,1     |       | -0,141 |
| 1,75000     | 0,25000 | 1. 10. 46,4     | 71,7  | 0,189  |
| 1,76000     | 0,24000 | 1. 9. 32,5      | 73,9  | 0,239  |
| 1,77000     | 0,23000 | 1. 8. 16,2      | 76,3  | 0,291  |
|             |         |                 | 78,7  |        |
| 1,78000     | 0,22000 | 1. 6. 57,5      | 81,3  | 0,346  |
| 1,79000     | 0,21000 | 1. 5. 36,2      | 84,2  | 0,405  |
| 1,80000     | 0,20000 | 1. 4. 12,0      | 87,1  | 0,467  |
| 1,81000     | 0,19000 | 1. 2. 44,9      | 90,3  | 0,532  |
|             |         |                 | 93,8  |        |
| 1,82000     | 0,18000 | 1. 1. 14,6      | 97,4  | 0,602  |
| 1,83000     | 0,17000 | 0. 59. 40,8     | 101,4 | 0,677  |
| 1,84000     | 0,16000 | 0. 58. 3,4      | 105,9 | 0,758  |
| 1,85000     | 0,15000 | 0. 56. 22,0     | 110,7 | 0,845  |
|             |         |                 | 116,1 |        |
| 1,86000     | 0,14000 | 0. 54. 36,1     | 122,0 | 0,939  |
| 1,87000     | 0,13000 | 0. 52. 45,4     | 128,9 | 1,042  |
| 1,88000     | 0,12000 | 0. 50. 49,3     | 136,6 | 1,155  |
| 1,89000     | 0,11000 | 0. 48. 47,3     | 145,7 | 1,281  |
|             |         |                 | 156,4 |        |
| 1,90000     | 0,10000 | 0. 46. 38,4     | 169,4 | 1,422  |
| 1,91000     | 0,09000 | 0. 44. 21,8     | 185,7 | 1,583  |
| 1,92000     | 0,08000 | 0. 41. 56,1     | 207,0 | 1,767  |
| 1,93000     | 0,07000 | 0. 39. 19,7     |       | 1,985  |
|             |         |                 |       |        |
| 1,94000     | 0,06000 | 0. 36. 30,3     |       | 2,245  |
| 1,95000     | 0,05000 | 0. 33. 24,6     |       | 2,578  |
| 1,96000     | 0,04000 | 0. 29. 57,6     |       | 3,011  |



TABLE XXXVIII. The Correction of the Semi-durations.

| ARGUMENT<br>C, D, E. |     | C    | D    | E    | ARGUMENT<br>C, D, E. |     | C    | D    | E    |
|----------------------|-----|------|------|------|----------------------|-----|------|------|------|
| +                    | -   | SEC. | SEC. | SEC. | +                    | -   | SEC. | SEC. | SEC. |
| 0                    | 500 | 4,5  | 8,7  | 4,8  | 750                  | 750 | 0,0  | 0,0  | 0,0  |
| 10                   | 510 | 4,5  | 8,6  | 4,8  | 760                  | 740 | 0,3  | 0,6  | 0,3  |
| 20                   | 520 | 4,5  | 8,6  | 4,7  | 770                  | 730 | 0,6  | 1,1  | 0,6  |
| 30                   | 530 | 4,5  | 8,5  | 4,7  | 780                  | 720 | 0,9  | 1,6  | 0,9  |
| 40                   | 540 | 4,4  | 8,4  | 4,6  | 790                  | 710 | 1,1  | 2,1  | 1,2  |
| 50                   | 550 | 4,3  | 8,2  | 4,5  | 800                  | 700 | 1,4  | 2,7  | 1,5  |
| 60                   | 560 | 4,2  | 8,0  | 4,4  | 810                  | 690 | 1,7  | 3,2  | 1,8  |
| 70                   | 570 | 4,1  | 7,8  | 4,3  | 820                  | 680 | 1,9  | 3,7  | 2,0  |
| 80                   | 580 | 4,0  | 7,6  | 4,2  | 830                  | 670 | 2,2  | 4,1  | 2,3  |
| 90                   | 590 | 3,8  | 7,3  | 4,0  | 840                  | 660 | 2,4  | 4,6  | 2,5  |
| 100                  | 600 | 3,7  | 7,0  | 3,9  | 850                  | 650 | 2,7  | 5,1  | 2,8  |
| 110                  | 610 | 3,5  | 6,6  | 3,7  | 860                  | 640 | 2,9  | 5,5  | 3,0  |
| 120                  | 620 | 3,3  | 6,3  | 3,5  | 870                  | 630 | 3,1  | 5,9  | 3,3  |
| 130                  | 630 | 3,1  | 5,9  | 3,3  | 880                  | 620 | 3,3  | 6,3  | 3,5  |
| 140                  | 640 | 2,9  | 5,5  | 3,0  | 890                  | 610 | 3,5  | 6,6  | 3,7  |
| 150                  | 650 | 2,7  | 4,1  | 2,8  | 900                  | 600 | 3,7  | 7,0  | 3,9  |
| 160                  | 660 | 2,4  | 4,6  | 2,5  | 910                  | 590 | 3,8  | 7,3  | 4,0  |
| 170                  | 670 | 2,2  | 4,1  | 2,3  | 920                  | 580 | 4,0  | 7,6  | 4,2  |
| 180                  | 680 | 1,9  | 3,7  | 2,0  | 930                  | 570 | 4,1  | 7,8  | 4,3  |
| 190                  | 690 | 1,7  | 3,2  | 1,8  | 940                  | 560 | 4,2  | 8,0  | 4,4  |
| 200                  | 700 | 1,4  | 2,7  | 1,5  | 950                  | 550 | 4,3  | 8,2  | 4,5  |
| 210                  | 710 | 1,1  | 2,1  | 1,2  | 960                  | 540 | 4,4  | 8,4  | 4,6  |
| 220                  | 720 | 0,9  | 1,6  | 0,9  | 970                  | 530 | 4,5  | 8,5  | 4,7  |
| 230                  | 730 | 0,6  | 1,1  | 0,6  | 980                  | 520 | 4,5  | 8,6  | 4,7  |
| 240                  | 740 | 0,3  | 0,6  | 0,3  | 990                  | 510 | 4,5  | 8,6  | 4,8  |
| 250                  | 750 | 0,0  | 0,0  | 0,0  | 0                    | 500 | 4,5  | 8,7  | 4,8  |

The Correction is + or -, according as the Argument is + or -.



TABLE XXXIX. *Epochs of the mean Conjunctions of the fourth Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   | E   | H    | I    | K    |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|------|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |      |      |
| B. 1660 | 2.             | 6.  | 35. | 14,1 | 32267 | 5174 | 3454 | 5877 | 725 | 466 | 5377 | 4485 | 2698 |
| 1661    | 5.             | 20. | 27. | 48,6 | 35329 | 5265 | 2694 | 6708 | 802 | 898 | 6228 | 5355 | 3623 |
| 1662    | 9.             | 10. | 20. | 23,2 | 2392  | 5356 | 1934 | 7539 | 880 | 329 | 7079 | 6225 | 4548 |
| 1663    | 13.            | 0.  | 12. | 57,7 | 5454  | 5447 | 1173 | 8372 | 957 | 761 | 7930 | 7095 | 5474 |
| B. 1664 | 15.            | 14. | 5.  | 32,3 | 8517  | 5338 | 0413 | 9203 | 034 | 192 | 8782 | 7966 | 6401 |
| 1665    | 2.             | 9.  | 52. | 59,8 | 11440 | 5170 | 9232 | 9997 | 109 | 286 | 9595 | 8797 | 7285 |
| 1666    | 5.             | 23. | 45. | 34,4 | 14503 | 5261 | 8471 | 0829 | 186 | 718 | 0447 | 9668 | 8211 |
| 1667    | 9.             | 13. | 38. | 8,9  | 17565 | 5352 | 7714 | 1659 | 264 | 149 | 1297 | 0536 | 9135 |
| B. 1668 | 12.            | 3.  | 30. | 43,5 | 20628 | 5443 | 6953 | 2490 | 341 | 581 | 2147 | 1406 | 0060 |
| 1669    | 15.            | 17. | 23. | 18,0 | 23690 | 5533 | 6195 | 3319 | 418 | 012 | 2996 | 2274 | 0983 |
| 1670    | 2.             | 13. | 10. | 45,6 | 26614 | 5166 | 5016 | 4110 | 492 | 106 | 3807 | 3103 | 1865 |
| 1671    | 6.             | 3.  | 3.  | 20,1 | 29677 | 5256 | 4256 | 4942 | 570 | 537 | 4658 | 3972 | 2791 |
| 1672    | 8.             | 16. | 55. | 54,7 | 32739 | 5347 | 3496 | 5773 | 647 | 969 | 5508 | 4842 | 3716 |
| 1673    | 12.            | 6.  | 48. | 29,2 | 35801 | 5438 | 2737 | 6604 | 725 | 400 | 6359 | 5712 | 4641 |
| 1674    | 15.            | 20. | 41. | 3,8  | 2864  | 5529 | 1976 | 7435 | 802 | 832 | 7211 | 6582 | 5566 |
| 1675    | 2.             | 16. | 28. | 31,3 | 5787  | 5161 | 0795 | 8230 | 876 | 926 | 8024 | 7413 | 6451 |
| B. 1676 | 5.             | 6.  | 21. | 5,9  | 8850  | 5252 | 0034 | 9062 | 953 | 357 | 8875 | 8284 | 7377 |
| 1677    | 8.             | 20. | 13. | 40,4 | 11913 | 5343 | 9275 | 9892 | 031 | 789 | 9726 | 9154 | 8303 |
| 1678    | 12.            | 10. | 6.  | 15,0 | 14975 | 5434 | 8515 | 0723 | 108 | 220 | 0577 | 0023 | 9228 |
| 1679    | 15.            | 23. | 58. | 49,5 | 18037 | 5525 | 7755 | 1554 | 185 | 652 | 1428 | 0893 | 0153 |
| B. 1680 | 1.             | 19. | 46. | 17,1 | 20961 | 5157 | 6576 | 2346 | 260 | 745 | 2239 | 1722 | 1035 |
| 1681    | 5.             | 9.  | 38. | 51,6 | 24023 | 5248 | 5817 | 3177 | 337 | 177 | 3089 | 2592 | 1960 |
| 1682    | 8.             | 23. | 31. | 26,2 | 27086 | 5339 | 5057 | 4008 | 414 | 609 | 3940 | 3461 | 2885 |
| 1683    | 12.            | 13. | 24. | 0,7  | 30148 | 5429 | 4297 | 4840 | 492 | 040 | 4791 | 4331 | 3811 |
| B. 1684 | 15.            | 3.  | 16. | 35,3 | 33211 | 5520 | 3537 | 5670 | 569 | 472 | 5641 | 5201 | 4736 |
| 1685    | 1.             | 23. | 4.  | 2,8  | 134   | 5152 | 2357 | 6463 | 643 | 565 | 6453 | 6031 | 5619 |
| 1686    | 5.             | 12. | 56. | 37,4 | 3196  | 5243 | 1599 | 7294 | 720 | 997 | 7303 | 6904 | 6543 |
| 1687    | 9.             | 2.  | 49. | 11,9 | 6260  | 5334 | 0840 | 8123 | 798 | 428 | 8153 | 7768 | 7467 |
| B. 1688 | 11.            | 16. | 41. | 46,5 | 9322  | 5425 | 0081 | 8953 | 875 | 860 | 9002 | 8637 | 8391 |
| 1689    | 15.            | 6.  | 34. | 21,1 | 12385 | 5516 | 9322 | 9783 | 952 | 291 | 9852 | 9505 | 9316 |
| 1690    | 2.             | 2.  | 21. | 48,6 | 15308 | 5148 | 8142 | 0577 | 027 | 385 | 0665 | 0336 | 0200 |
| 1691    | 5.             | 16. | 14. | 23,2 | 18370 | 5239 | 7381 | 1409 | 104 | 817 | 1517 | 1207 | 1126 |
| 1692    | 8.             | 6.  | 6.  | 57,7 | 21433 | 5330 | 6620 | 2241 | 182 | 248 | 2367 | 2078 | 2052 |
| 1693    | 11.            | 19. | 59. | 32,3 | 24495 | 5421 | 5858 | 3073 | 259 | 680 | 3221 | 2949 | 2979 |
| 1694    | 15.            | 9.  | 52. | 6,8  | 27557 | 5511 | 5098 | 3904 | 337 | 111 | 4073 | 3820 | 3905 |
| 1695    | 2.             | 5.  | 39. | 34,4 | 30481 | 5144 | 3918 | 4699 | 411 | 205 | 4885 | 4650 | 4789 |
| B. 1696 | 4.             | 19. | 32. | 8,9  | 33543 | 5234 | 3158 | 5529 | 488 | 637 | 5736 | 5520 | 5714 |
| 1697    | 8.             | 9.  | 24. | 43,5 | 606   | 5325 | 2399 | 6359 | 565 | 068 | 6585 | 6388 | 6638 |
| 1698    | 11.            | 23. | 17. | 18,0 | 3669  | 5416 | 1641 | 7189 | 643 | 500 | 7435 | 7257 | 7562 |
| 1699    | 15.            | 13. | 9.  | 52,6 | 6731  | 5507 | 0883 | 8018 | 720 | 931 | 8284 | 8125 | 8485 |



## FOURTH SATELLITE OF JUPITER.

TABLE XXXIX. *Epochs of the mean Conjunctions of the fourth Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS. | Mean Conjunct. |     |     |          | A     | S    | B    | C    | D   | E   | H    | I    | K    |
|--------|----------------|-----|-----|----------|-------|------|------|------|-----|-----|------|------|------|
|        | D.             | H.  | M.  | S.       |       |      |      |      |     |     |      |      |      |
| B.     | 1700           | 2.  | 8.  | 57. 20,1 | 9654  | 5139 | 9704 | 8809 | 794 | 024 | 9095 | 8954 | 9367 |
|        | 1701           | 5.  | 22. | 49. 54,7 | 12717 | 5230 | 8942 | 9642 | 871 | 456 | 9946 | 9824 | 0294 |
|        | 1702           | 9.  | 12. | 42. 29,2 | 15780 | 5321 | 8181 | 0475 | 949 | 888 | 0798 | 0695 | 1220 |
|        | 1703           | 13. | 2.  | 35. 3,8  | 18842 | 5412 | 7420 | 1308 | 027 | 320 | 1650 | 1566 | 2146 |
|        | 1704           | 15. | 16. | 27. 38,3 | 21905 | 5503 | 6659 | 2139 | 104 | 751 | 2503 | 2437 | 3073 |
| B.     | 1705           | 2.  | 12. | 15. 5,9  | 24828 | 5135 | 5480 | 2931 | 178 | 845 | 3316 | 3268 | 3957 |
|        | 1706           | 6.  | 2.  | 7. 40,4  | 27890 | 5226 | 4721 | 3762 | 255 | 276 | 4165 | 4137 | 4881 |
|        | 1707           | 9.  | 16. | 0. 15,0  | 30953 | 5316 | 3962 | 4592 | 333 | 708 | 5015 | 5008 | 5806 |
|        | 1708           | 12. | 5.  | 52. 49,5 | 34015 | 5407 | 3203 | 5422 | 410 | 139 | 5865 | 5874 | 6730 |
|        | 1709           | 15. | 19. | 45. 24,1 | 1078  | 5498 | 2443 | 6253 | 487 | 571 | 6715 | 6744 | 7655 |
| B.     | 1710           | 2.  | 15. | 32. 51,6 | 4001  | 5130 | 1264 | 7045 | 561 | 664 | 7526 | 7573 | 8537 |
|        | 1711           | 6.  | 5.  | 25. 26,2 | 7064  | 5221 | 0505 | 7876 | 639 | 096 | 8377 | 8443 | 9462 |
|        | 1712           | 8.  | 19. | 18. 0,7  | 10126 | 5312 | 9744 | 8708 | 716 | 527 | 9229 | 9313 | 0388 |
|        | 1713           | 12. | 9.  | 10. 35,3 | 13188 | 5403 | 8983 | 9540 | 794 | 959 | 0080 | 0184 | 1315 |
|        | 1714           | 15. | 23. | 3. 9,8   | 16250 | 5494 | 8222 | 0372 | 871 | 391 | 0932 | 1055 | 2241 |
| B.     | 1715           | 2.  | 18. | 50. 37,4 | 19174 | 5126 | 7040 | 1167 | 945 | 485 | 1746 | 1887 | 3126 |
|        | 1716           | 5.  | 8.  | 43. 11,9 | 22237 | 5217 | 6281 | 1998 | 023 | 916 | 2597 | 2756 | 4051 |
|        | 1717           | 8.  | 22. | 35. 46,5 | 25299 | 5308 | 5523 | 2829 | 100 | 348 | 3448 | 3626 | 4976 |
|        | 1718           | 12. | 12. | 28. 21,0 | 28361 | 5398 | 4762 | 3619 | 177 | 779 | 4297 | 4495 | 5900 |
|        | 1719           | 16. | 2.  | 20. 55,6 | 31424 | 5489 | 4003 | 4489 | 255 | 211 | 5147 | 5363 | 6825 |
| B.     | 1720           | 1.  | 22. | 8. 23,1  | 34348 | 5121 | 2825 | 5280 | 329 | 304 | 5958 | 6193 | 7707 |
|        | 1721           | 5.  | 12. | 0. 57,7  | 1410  | 5212 | 2066 | 6111 | 406 | 736 | 6808 | 7061 | 8630 |
|        | 1722           | 9.  | 1.  | 53. 32,2 | 4473  | 5303 | 1305 | 6943 | 483 | 167 | 7659 | 7932 | 9557 |
|        | 1723           | 12. | 15. | 46. 6,8  | 7535  | 5394 | 0545 | 7774 | 561 | 599 | 8510 | 8801 | 0482 |
|        | 1724           | 15. | 5.  | 38. 41,4 | 10597 | 5485 | 9784 | 8606 | 639 | 030 | 9363 | 9673 | 1409 |
| B.     | 1725           | 2.  | 1.  | 26. 8,9  | 13520 | 5117 | 8604 | 9400 | 712 | 124 | 0175 | 0503 | 2293 |
|        | 1726           | 5.  | 15. | 18. 43,4 | 16583 | 5208 | 7843 | 0232 | 790 | 556 | 1026 | 1374 | 3219 |
|        | 1727           | 9.  | 5.  | 11. 18,0 | 19645 | 5299 | 7084 | 1062 | 867 | 987 | 1876 | 2242 | 4143 |
|        | 1728           | 11. | 19. | 3. 52,6  | 22708 | 5390 | 6325 | 1892 | 945 | 419 | 2726 | 3111 | 5067 |
|        | 1729           | 15. | 8.  | 56. 27,1 | 25771 | 5480 | 5566 | 2723 | 022 | 850 | 3576 | 3981 | 5992 |
| B.     | 1730           | 2.  | 4.  | 43. 54,6 | 28694 | 5112 | 4387 | 3514 | 096 | 944 | 4388 | 4810 | 6874 |
|        | 1731           | 5.  | 18. | 36. 29,2 | 31756 | 5203 | 3627 | 4345 | 173 | 375 | 5238 | 5679 | 7800 |
|        | 1732           | 8.  | 8.  | 29. 3,8  | 34819 | 5294 | 2867 | 5176 | 251 | 807 | 6089 | 6549 | 8725 |
|        | 1733           | 11. | 22. | 21. 38,3 | 1881  | 5385 | 2108 | 6008 | 328 | 238 | 6940 | 7419 | 9650 |
|        | 1734           | 15. | 12. | 14. 12,9 | 4944  | 5476 | 1347 | 6839 | 406 | 670 | 7791 | 8289 | 0576 |
| B.     | 1735           | 2.  | 8.  | 1. 40,4  | 7867  | 5108 | 0167 | 7632 | 480 | 764 | 8603 | 9120 | 1459 |
|        | 1736           | 4.  | 21. | 54. 15,0 | 10929 | 5199 | 9406 | 8464 | 557 | 195 | 9455 | 9990 | 2385 |
|        | 1737           | 8.  | 11. | 46. 49,5 | 13991 | 5290 | 8647 | 9295 | 635 | 627 | 0306 | 0860 | 3311 |
|        | 1738           | 12. | 1.  | 39. 24,1 | 17054 | 5381 | 7887 | 0126 | 712 | 058 | 1156 | 1729 | 4236 |
|        | 1739           | 15. | 15. | 31. 58,6 | 20116 | 5472 | 7128 | 0956 | 789 | 490 | 2008 | 2598 | 5160 |



TABLE XXXIX. *Epochs of the mean Conjunctions of the fourth Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   | E   | H    | I    | K    |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|------|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |      |      |
| B. 1740 | 1.             | 11. | 19. | 26,1 | 23040 | 5104 | 5948 | 1749 | 863 | 583 | 2818 | 3428 | 6043 |
| 1741    | 5.             | 1.  | 12. | 0,7  | 26103 | 5195 | 5189 | 2580 | 940 | 015 | 3669 | 4298 | 6968 |
| 1742    | 8.             | 15. | 4.  | 35,2 | 29165 | 5285 | 4429 | 3411 | 018 | 447 | 4520 | 5167 | 7893 |
| 1743    | 12.            | 4.  | 57. | 9,8  | 32227 | 5376 | 3669 | 4242 | 095 | 878 | 5370 | 6037 | 8819 |
| B. 1744 | 14.            | 18. | 49. | 44,4 | 35290 | 5467 | 2909 | 5072 | 173 | 310 | 6221 | 6907 | 9744 |
| 1745    | 1.             | 14. | 37. | 11,9 | 2213  | 5099 | 1729 | 5866 | 247 | 403 | 7032 | 7736 | 0626 |
| 1746    | 5.             | 4.  | 29. | 46,4 | 5275  | 5190 | 0972 | 6695 | 324 | 835 | 7882 | 8604 | 1550 |
| 1747    | 8.             | 18. | 22. | 21,0 | 8338  | 5281 | 0213 | 7524 | 401 | 266 | 8731 | 9473 | 2474 |
| B. 1748 | 11.            | 8.  | 14. | 55,6 | 11400 | 5372 | 9454 | 8354 | 479 | 697 | 9581 | 0342 | 3398 |
| 1749    | 14.            | 22. | 7.  | 30,1 | 14463 | 5463 | 8694 | 9185 | 556 | 129 | 0432 | 1211 | 4324 |
| 1750    | 1.             | 17. | 54. | 57,6 | 17386 | 5095 | 7515 | 9978 | 630 | 223 | 1244 | 2042 | 5207 |
| 1751    | 5.             | 7.  | 47. | 32,2 | 20448 | 5186 | 6753 | 0811 | 708 | 654 | 2096 | 2913 | 6134 |
| B. 1752 | 7.             | 21. | 40. | 6,8  | 23511 | 5277 | 5992 | 1644 | 785 | 086 | 2948 | 3784 | 7060 |
| 1753    | 11.            | 11. | 32. | 41,3 | 26573 | 5367 | 5230 | 2477 | 863 | 517 | 3801 | 4655 | 7987 |
| 1754    | 15.            | 1.  | 25. | 15,9 | 29636 | 5458 | 4470 | 3308 | 940 | 949 | 4652 | 5526 | 8913 |
| 1755    | 1.             | 21. | 12. | 43,4 | 32559 | 5091 | 3290 | 4101 | 014 | 043 | 5463 | 6356 | 9796 |
| B. 1756 | 4.             | 11. | 5.  | 18,0 | 35621 | 5181 | 2531 | 4932 | 092 | 475 | 6314 | 7225 | 0721 |
| 1757    | 8.             | 0.  | 57. | 52,5 | 2684  | 5272 | 1772 | 5762 | 169 | 906 | 7164 | 8093 | 1645 |
| 1758    | 11.            | 14. | 50. | 27,1 | 5746  | 5363 | 1015 | 6590 | 246 | 337 | 8013 | 8961 | 2568 |
| 1759    | 15.            | 4.  | 43. | 1,6  | 8809  | 5454 | 0256 | 7420 | 324 | 769 | 8862 | 9830 | 3492 |
| B. 1760 | 1.             | 0.  | 30. | 29,2 | 11732 | 5086 | 9077 | 8212 | 397 | 862 | 9673 | 0659 | 4374 |
| 1761    | 4.             | 14. | 23. | 3,7  | 14794 | 5177 | 8316 | 9044 | 475 | 294 | 0525 | 1529 | 5300 |
| 1762    | 8.             | 4.  | 15. | 38,3 | 17857 | 5268 | 7555 | 9876 | 552 | 726 | 1377 | 2400 | 6227 |
| 1763    | 11.            | 18. | 8.  | 12,8 | 20919 | 5359 | 6794 | 0709 | 630 | 157 | 2229 | 3272 | 7154 |
| B. 1764 | 14.            | 8.  | 0.  | 47,4 | 23981 | 5449 | 6032 | 1543 | 708 | 589 | 3082 | 4143 | 8081 |
| 1765    | 1.             | 3.  | 48. | 14,9 | 26905 | 5082 | 4852 | 2336 | 782 | 683 | 3894 | 4974 | 8964 |
| 1766    | 4.             | 17. | 40. | 49,5 | 29967 | 5173 | 4093 | 3165 | 859 | 114 | 4744 | 5842 | 9888 |
| 1767    | 8.             | 7.  | 33. | 24,0 | 33029 | 5263 | 3335 | 3995 | 936 | 546 | 5593 | 6711 | 0812 |
| B. 1768 | 10.            | 21. | 25. | 58,6 | 92    | 5354 | 2576 | 4825 | 013 | 977 | 6443 | 7579 | 1737 |
| 1769    | 14.            | 11. | 18. | 33,1 | 3154  | 5445 | 1817 | 5655 | 091 | 408 | 7293 | 8448 | 2661 |
| 1770    | 1.             | 7.  | 6.  | 0,8  | 6078  | 5077 | 0637 | 6447 | 165 | 502 | 8105 | 9278 | 3544 |
| 1771    | 4.             | 20. | 58. | 35,2 | 9140  | 5168 | 9878 | 7279 | 242 | 934 | 8956 | 0148 | 4469 |
| B. 1772 | 7.             | 10. | 51. | 9,8  | 12202 | 5259 | 9117 | 8111 | 320 | 365 | 9806 | 1018 | 5395 |
| 1773    | 11.            | 0.  | 43. | 44,3 | 15265 | 5350 | 8356 | 8943 | 397 | 797 | 0658 | 1889 | 6321 |
| 1774    | 14.            | 14. | 36. | 18,9 | 18327 | 5441 | 7594 | 9775 | 475 | 229 | 1510 | 2761 | 7249 |
| 1775    | 1.             | 10. | 23. | 46,4 | 21250 | 5073 | 6413 | 0570 | 549 | 322 | 2324 | 3592 | 8133 |
| B. 1776 | 4.             | 0.  | 16. | 21,0 | 24313 | 5164 | 5654 | 1401 | 627 | 754 | 3175 | 4462 | 9058 |
| 1777    | 7.             | 14. | 8.  | 55,5 | 27375 | 5255 | 4895 | 2230 | 704 | 185 | 4025 | 5330 | 9982 |
| 1778    | 11.            | 4.  | 1.  | 30,1 | 30437 | 5345 | 4135 | 3061 | 781 | 617 | 4876 | 6200 | 0907 |
| 1779    | 14.            | 17. | 54. | 4,7  | 33500 | 5436 | 3377 | 3889 | 858 | 48  | 5724 | 7067 | 1830 |



TABLE XXXIX. *Epochs of the mean Conjunctions of the fourth Satellite of Jupiter, with the Arguments of the Equations.*

| YEARS.  | Mean Conjunct. |     |     |      | A     | S    | B    | C    | D   | E   | H    | I    | K    |
|---------|----------------|-----|-----|------|-------|------|------|------|-----|-----|------|------|------|
|         | D.             | H.  | M.  | S.   |       |      |      |      |     |     |      |      |      |
| B. 1780 | 0.             | 13. | 41. | 32,1 | 423   | 5068 | 2198 | 4682 | 932 | 142 | 6536 | 7897 | 2714 |
| 1781    | 4.             | 3.  | 34. | 6,7  | 3486  | 5159 | 1437 | 5514 | 010 | 574 | 7386 | 8766 | 3638 |
| 1782    | 7.             | 17. | 26. | 41,3 | 6548  | 5250 | 0677 | 6345 | 087 | 005 | 8238 | 9637 | 4564 |
| 1783    | 11.            | 7.  | 19. | 15,8 | 9610  | 5341 | 9917 | 7176 | 165 | 437 | 9090 | 0507 | 5490 |
| B. 1784 | 13.            | 21. | 11. | 50,4 | 12673 | 5432 | 9157 | 8008 | 242 | 868 | 9940 | 1377 | 6415 |
| 1785    | 0.             | 16. | 59. | 17,9 | 15596 | 5064 | 7977 | 8801 | 316 | 962 | 0753 | 2208 | 7299 |
| 1786    | 4.             | 6.  | 51. | 52,5 | 18659 | 5155 | 7217 | 9631 | 394 | 393 | 1604 | 3078 | 8225 |
| 1787    | 7.             | 20. | 44. | 27,0 | 21720 | 5246 | 6457 | 0462 | 471 | 825 | 2455 | 3947 | 9150 |
| B. 1788 | 10.            | 10. | 37. | 1,6  | 24783 | 5337 | 5699 | 1293 | 548 | 256 | 3304 | 4816 | 0074 |
| 1789    | 14.            | 0.  | 29. | 36,2 | 27845 | 5427 | 4939 | 2124 | 626 | 688 | 4155 | 5686 | 0999 |
| 1790    | 0.             | 20. | 17. | 3,7  | 30768 | 5060 | 3760 | 2915 | 700 | 782 | 4966 | 6516 | 1881 |
| 1791    | 4.             | 10. | 9.  | 38,2 | 33831 | 5150 | 3000 | 3747 | 777 | 213 | 5817 | 7585 | 2806 |
| B. 1792 | 7.             | 0.  | 2.  | 12,8 | 893   | 5241 | 2240 | 4578 | 854 | 645 | 6667 | 8254 | 3732 |
| 1793    | 10.            | 13. | 54. | 47,3 | 3956  | 5332 | 1481 | 5409 | 932 | 076 | 7518 | 9124 | 4657 |
| 1794    | 14.            | 3.  | 47. | 21,9 | 7018  | 5423 | 0720 | 6240 | 009 | 508 | 8370 | 9994 | 5583 |
| 1795    | 0.             | 23. | 34. | 49,4 | 9941  | 5055 | 9540 | 7034 | 083 | 601 | 9184 | 0825 | 6466 |
| B. 1796 | 3.             | 13. | 27. | 24,0 | 13003 | 5146 | 8780 | 7865 | 161 | 033 | 0033 | 1694 | 7391 |
| 1797    | 7.             | 3.  | 19. | 58,5 | 16066 | 5237 | 8021 | 8695 | 238 | 465 | 0883 | 2564 | 8316 |
| 1798    | 10.            | 17. | 12. | 33,1 | 19128 | 5328 | 7261 | 9526 | 316 | 896 | 1734 | 3433 | 9242 |
| 1799    | 14.            | 7.  | 5.  | 7,7  | 22191 | 5419 | 6501 | 0358 | 393 | 328 | 2585 | 4303 | 0167 |
| 1800    | 1.             | 2.  | 52. | 35,2 | 25114 | 5051 | 5321 | 1150 | 467 | 421 | 3397 | 5133 | 1050 |
| 1801    | 4.             | 16. | 45. | 9,8  | 28176 | 5142 | 4562 | 1981 | 544 | 853 | 4247 | 6003 | 1975 |
| 1802    | 8.             | 6.  | 37. | 44,3 | 31238 | 5232 | 3802 | 2812 | 622 | 284 | 5098 | 6872 | 2900 |
| 1803    | 11.            | 20. | 30. | 18,9 | 34300 | 5323 | 3042 | 3644 | 699 | 716 | 5949 | 7742 | 3825 |
| B. 1804 | 14.            | 10. | 22. | 53,4 | 01363 | 5414 | 2282 | 4474 | 777 | 147 | 6799 | 8612 | 4751 |
| 1805    | 1.             | 6.  | 10. | 20,9 | 04286 | 5046 | 1103 | 5266 | 850 | 241 | 7610 | 9441 | 5633 |
| 1806    | 4.             | 20. | 2.  | 55,5 | 7349  | 5137 | 0346 | 6097 | 928 | 672 | 8459 | 0309 | 6556 |
| 1807    | 8.             | 9.  | 55. | 30,1 | 10411 | 5228 | 9587 | 6925 | 005 | 104 | 9309 | 1177 | 7480 |
| B. 1808 | 10.            | 23. | 48. | 4,6  | 13473 | 5319 | 8828 | 7755 | 082 | 535 | 0159 | 2046 | 8484 |
| 1809    | 14.            | 13. | 40. | 39,2 | 16536 | 5410 | 8068 | 8586 | 160 | 967 | 1009 | 2915 | 9329 |
| 1810    | 1.             | 9.  | 28. | 6,7  | 19459 | 5042 | 6888 | 9380 | 234 | 060 | 1822 | 3747 | 0214 |
| 1811    | 4.             | 23. | 20. | 41,2 | 22521 | 5133 | 6126 | 0213 | 311 | 492 | 2675 | 4618 | 1141 |
| B. 1812 | 7.             | 13. | 13. | 15,8 | 25584 | 5224 | 5364 | 1046 | 388 | 924 | 3528 | 5490 | 2068 |
| 1813    | 11.            | 3.  | 5.  | 50,4 | 28646 | 5314 | 4603 | 1878 | 467 | 355 | 4379 | 6361 | 2994 |
| 1814    | 14.            | 16. | 58. | 24,9 | 31708 | 5405 | 3843 | 2709 | 544 | 787 | 5231 | 7231 | 3920 |
| 1815    | 1.             | 12. | 45. | 52,4 | 34632 | 5037 | 2664 | 3502 | 618 | 881 | 6040 | 8060 | 4802 |
| B. 1816 | 4.             | 2.  | 38. | 27,0 | 1694  | 5128 | 1905 | 4332 | 695 | 312 | 6890 | 8929 | 5726 |
| 1817    | 7.             | 16. | 31. | 1,6  | 4756  | 5219 | 1146 | 5161 | 773 | 744 | 7742 | 9798 | 6651 |
| 1818    | 11.            | 6.  | 23. | 36,1 | 7818  | 5310 | 0388 | 5991 | 850 | 175 | 8595 | 0665 | 7574 |
| 1819    | 14.            | 20. | 16. | 10,7 | 10881 | 5401 | 9631 | 6820 | 927 | 606 | 9446 | 1533 | 8497 |
| B. 1820 | 0.             | 16. | 3.  | 38,2 | 13804 | 5033 | 8452 | 7611 | 001 | 700 | 0257 | 2362 | 9379 |



TABLE XL. Revolutions of the fourth Satellite for Months.

| MONTHS.    | Change of the<br>Mean Conjunction. |     |     |      | A    | S    | B    | C   | D  | E   | H.  | I   | K   |
|------------|------------------------------------|-----|-----|------|------|------|------|-----|----|-----|-----|-----|-----|
|            | D.                                 | H.  | M.  | S.   |      |      |      |     |    |     |     |     |     |
| January.   | 16.                                | 18. | 5.  | 7,0  | 139  | 459  | 420  | 38  | 4  | 338 | 39  | 40  | 42  |
| February.  | 2.                                 | 12. | 10. | 14,1 | 278  | 917  | 840  | 76  | 7  | 676 | 77  | 79  | 84  |
|            | 19.                                | 6.  | 15. | 21,1 | 418  | 1376 | 1260 | 113 | 11 | 013 | 116 | 119 | 126 |
| March.     | 8.                                 | 0.  | 20. | 28,1 | 557  | 1835 | 1680 | 151 | 14 | 351 | 155 | 158 | 168 |
| April.     | 24.                                | 18. | 25. | 35,1 | 696  | 2293 | 2100 | 189 | 18 | 689 | 193 | 198 | 210 |
|            | 10.                                | 12. | 30. | 42,2 | 835  | 2752 | 2520 | 227 | 21 | 027 | 232 | 237 | 252 |
| May.       | 27.                                | 6.  | 35. | 49,2 | 974  | 3211 | 2940 | 264 | 25 | 365 | 271 | 277 | 294 |
|            | 14.                                | 0.  | 40. | 56,2 | 1114 | 3669 | 3360 | 302 | 28 | 702 | 309 | 316 | 336 |
|            | 30.                                | 18. | 46. | 3,2  | 1253 | 4128 | 3780 | 340 | 32 | 040 | 348 | 356 | 378 |
| June.      | 16.                                | 12. | 51. | 10,3 | 1392 | 4587 | 4200 | 378 | 35 | 378 | 387 | 395 | 421 |
| July.      | 3.                                 | 6.  | 56. | 17,3 | 1531 | 5045 | 4620 | 416 | 39 | 716 | 425 | 435 | 463 |
|            | 20.                                | 1.  | 1.  | 24,3 | 1670 | 5504 | 5040 | 453 | 42 | 054 | 464 | 474 | 505 |
| August.    | 5.                                 | 19. | 6.  | 31,3 | 1810 | 5963 | 5460 | 491 | 46 | 391 | 503 | 514 | 547 |
| September. | 22.                                | 13. | 11. | 38,4 | 1949 | 6421 | 5880 | 529 | 49 | 729 | 541 | 553 | 589 |
|            | 8.                                 | 7.  | 16. | 45,4 | 2088 | 6880 | 6300 | 567 | 53 | 067 | 580 | 593 | 631 |
| October.   | 25.                                | 1.  | 21. | 52,4 | 2227 | 7339 | 6720 | 605 | 56 | 405 | 619 | 632 | 673 |
|            | 11.                                | 19. | 26. | 59,4 | 2366 | 7797 | 7140 | 642 | 60 | 743 | 657 | 672 | 715 |
|            | 28.                                | 13. | 32. | 6,5  | 2506 | 8256 | 7560 | 680 | 63 | 080 | 696 | 712 | 757 |
| November.  | 14.                                | 7.  | 37. | 13,5 | 2645 | 8715 | 7980 | 718 | 67 | 418 | 735 | 751 | 799 |
| December.  | 1.                                 | 1.  | 42. | 20,5 | 2784 | 9173 | 8400 | 756 | 70 | 756 | 773 | 791 | 841 |
|            | 17.                                | 19. | 47. | 27,5 | 2923 | 9632 | 8820 | 793 | 74 | 094 | 812 | 831 | 883 |
| January.   | 3.                                 | 13. | 52. | 34,6 | 3062 | 0091 | 9240 | 831 | 77 | 432 | 851 | 870 | 925 |

In Bissextile Years, add One Day in the Months of January and February.



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1660, 0 | 27.    | 19,4 | 19,8  |  | 1668, 0 | 32.    | 42,3 | 31,3  |  | 1676, 0 | 33.    | 21,7 | 18,2  |
| 2       | 26.    | 59,6 | 16,1  |  | 2       | 32.    | 11,0 | 32,9  |  | 2       | 33.    | 39,9 | 14,1  |
| 4       | 26.    | 43,5 | 12,9  |  | 4       | 31.    | 38,1 | 32,9  |  | 4       | 33.    | 54,0 | 11,4  |
| 6       | 26.    | 30,6 | 9,5   |  | 6       | 31.    | 5,2  | 32,9  |  | 6       | 34.    | 5,4  | 10,9  |
| 8       | 26.    | 21,1 | 7,5   |  | 8       | 30.    | 32,3 | 32,8  |  | 8       | 34.    | 16,3 | 7,8   |
| 1661, 0 | 26.    | 13,6 | 2,0   |  | 1669, 0 | 29.    | 59,5 | 31,7  |  | 1677, 0 | 34.    | 24,1 | 2,1   |
| 2       | 26.    | 11,6 | 2,5   |  | 2       | 29.    | 27,8 | 30,0  |  | 2       | 34.    | 26,2 | 0,2   |
| 4       | 26.    | 14,1 | 5,2   |  | 4       | 28.    | 57,8 | 29,6  |  | 4       | 34.    | 26,4 | 2,8   |
| 6       | 26.    | 19,3 | 9,3   |  | 6       | 28.    | 28,2 | 26,2  |  | 6       | 34.    | 23,6 | 5,7   |
| 8       | 26.    | 28,6 | 13,3  |  | 8       | 28.    | 2,0  | 25,4  |  | 8       | 34.    | 17,9 | 8,6   |
| 1662, 0 | 26.    | 41,9 | 17,2  |  | 1670, 0 | 27.    | 36,6 | 20,6  |  | 1678, 0 | 34.    | 9,3  | 9,5   |
| 2       | 26.    | 59,1 | 21,9  |  | 2       | 27.    | 16,0 | 18,1  |  | 2       | 33.    | 59,8 | 14,0  |
| 4       | 27.    | 21,0 | 24,5  |  | 4       | 26.    | 57,9 | 16,6  |  | 4       | 33.    | 45,8 | 14,8  |
| 6       | 27.    | 45,5 | 27,6  |  | 6       | 26.    | 41,3 | 13,5  |  | 6       | 33.    | 31,0 | 16,7  |
| 8       | 28.    | 13,1 | 29,7  |  | 8       | 26.    | 27,8 | 10,8  |  | 8       | 33.    | 14,3 | 18,6  |
| 1663, 0 | 28.    | 42,8 | 31,7  |  | 1671, 0 | 26.    | 17,0 | 5,4   |  | 1679, 0 | 32.    | 55,7 | 19,1  |
| 2       | 29.    | 14,5 | 33,7  |  | 2       | 26.    | 11,6 | 3,1   |  | 2       | 32.    | 36,6 | 19,7  |
| 4       | 29.    | 48,2 | 35,1  |  | 4       | 26.    | 8,5  | 0,3   |  | 4       | 32.    | 16,9 | 18,9  |
| 6       | 30.    | 23,3 | 36,3  |  | 6       | 26.    | 8,2  | 2,5   |  | 6       | 31.    | 58,0 | 17,9  |
| 8       | 30.    | 59,6 | 36,6  |  | 8       | 26.    | 10,7 | 2,2   |  | 8       | 31.    | 40,1 | 16,8  |
| 1664, 0 | 31.    | 36,2 | 35,0  |  | 1672, 0 | 26.    | 12,9 | 7,8   |  | 1680, 0 | 31.    | 23,3 | 15,0  |
| 2       | 32.    | 11,2 | 32,6  |  | 2       | 26.    | 20,7 | 11,0  |  | 2       | 31.    | 8,3  | 13,7  |
| 4       | 32.    | 43,8 | 31,4  |  | 4       | 26.    | 31,7 | 14,2  |  | 4       | 30.    | 54,6 | 11,4  |
| 6       | 33.    | 15,2 | 30,5  |  | 6       | 26.    | 45,9 | 13,6  |  | 6       | 30.    | 43,2 | 9,3   |
| 8       | 33.    | 45,7 | 29,7  |  | 8       | 26.    | 59,5 | 17,2  |  | 8       | 30.    | 33,9 | 7,3   |
| 1665, 0 | 34.    | 15,4 | 25,0  |  | 1673, 0 | 27.    | 16,7 | 19,1  |  | 1681, 0 | 30.    | 26,6 | 4,0   |
| 2       | 34.    | 40,4 | 20,1  |  | 2       | 27.    | 35,8 | 20,7  |  | 2       | 30.    | 22,6 | 3,9   |
| 4       | 35.    | 0,5  | 13,8  |  | 4       | 27.    | 56,5 | 22,1  |  | 4       | 30.    | 18,7 | 0,5   |
| 6       | 35.    | 14,3 | 10,3  |  | 6       | 28.    | 18,6 | 23,8  |  | 6       | 30.    | 19,2 | 1,5   |
| 8       | 35.    | 24,6 | 6,3   |  | 8       | 28.    | 42,4 | 25,3  |  | 8       | 30.    | 20,7 | 3,8   |
| 1666, 0 | 35.    | 30,9 | 0,9   |  | 1674, 0 | 29.    | 7,7  | 26,0  |  | 1682, 0 | 30.    | 24,5 | 4,8   |
| 2       | 35.    | 31,8 | 5,2   |  | 2       | 29.    | 33,7 | 26,7  |  | 2       | 30.    | 29,3 | 5,4   |
| 4       | 35.    | 26,6 | 7,8   |  | 4       | 30.    | 0,4  | 27,8  |  | 4       | 30.    | 34,7 | 5,7   |
| 6       | 35.    | 18,8 | 11,8  |  | 6       | 30.    | 28,2 | 28,0  |  | 6       | 30.    | 40,4 | 6,0   |
| 8       | 35.    | 7,0  | 14,1  |  | 8       | 30.    | 56,2 | 26,0  |  | 8       | 30.    | 46,4 | 6,5   |
| 1667, 0 | 34.    | 52,9 | 19,2  |  | 1675, 0 | 31.    | 22,2 | 26,0  |  | 1683, 0 | 30.    | 52,9 | 6,4   |
| 2       | 34.    | 33,7 | 23,3  |  | 2       | 31.    | 48,2 | 24,8  |  | 2       | 30.    | 59,3 | 5,3   |
| 4       | 34.    | 10,4 | 26,2  |  | 4       | 32.    | 13,0 | 24,9  |  | 4       | 31.    | 4,6  | 2,1   |
| 6       | 33.    | 44,2 | 31,5  |  | 6       | 32.    | 37,9 | 22,5  |  | 6       | 31.    | 6,7  | 0,2   |
| 8       | 33.    | 12,7 | 30,4  |  | 8       | 33.    | 0,4  | 21,3  |  | 8       | 31.    | 6,9  | 2,3   |
| 1668, 0 | 32.    | 42,3 |       |  | 1676, 0 | 33.    | 21,7 |       |  | 1684, 0 | 31.    | 4,6  |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1684, 0 | 31.    | 4,6  |       |  | 1692, 0 | 29.    | 41,9 |       |  | 1700, 0 | 25.    | 19,9 |       |
| 2       | 31.    | 0,4  | 4,2   |  | 2       | 30.    | 29,6 | 47,7  |  | 2       | 25.    | 7,6  | 12,3  |
| 4       | 30.    | 54,8 | 5,6   |  | 4       | 31.    | 16,6 | 47,0  |  | 4       | 24.    | 59,3 | 8,3   |
| 6       | 30.    | 47,6 | 7,2   |  | 6       | 32.    | 2,4  | 45,8  |  | 6       | 25.    | 1,4  | 2,1   |
| 8       | 30.    | 37,4 | 10,2  |  | 8       | 32.    | 46,1 | 43,7  |  | 8       | 25.    | 8,6  | 7,2   |
|         |        |      | 14,8  |  |         |        |      | 41,9  |  |         |        |      | 13,2  |
| 1685, 0 | 30.    | 22,6 |       |  | 1693, 0 | 33.    | 28,0 |       |  | 1701, 0 | 25.    | 21,8 |       |
| 2       | 30.    | 4,9  | 17,7  |  | 2       | 34.    | 7,2  | 39,2  |  | 2       | 25.    | 41,6 | 19,8  |
| 4       | 29.    | 44,8 | 20,1  |  | 4       | 34.    | 44,4 | 37,2  |  | 4       | 26.    | 7,3  | 25,7  |
| 6       | 29.    | 22,0 | 22,8  |  | 6       | 35.    | 18,6 | 34,2  |  | 6       | 26.    | 39,6 | 32,3  |
| 8       | 28.    | 57,7 | 24,3  |  | 8       | 35.    | 46,1 | 27,5  |  | 8       | 27.    | 16,9 | 37,3  |
|         |        |      | 26,3  |  |         |        |      | 23,9  |  |         |        |      | 41,2  |
| 1686, 0 | 28.    | 31,4 |       |  | 1694, 0 | 36.    | 10,0 |       |  | 1702, 0 | 27.    | 58,1 |       |
| 2       | 28.    | 3,7  | 27,7  |  | 2       | 36.    | 28,6 | 18,6  |  | 2       | 28.    | 45,0 | 46,9  |
| 4       | 27.    | 34,6 | 29,1  |  | 4       | 36.    | 41,1 | 12,5  |  | 4       | 29.    | 33,2 | 48,2  |
| 6       | 27.    | 5,0  | 29,6  |  | 6       | 36.    | 48,7 | 7,6   |  | 6       | 30.    | 23,2 | 50,0  |
| 8       | 26.    | 34,3 | 30,7  |  | 8       | 36.    | 51,4 | 2,7   |  | 8       | 31.    | 13,8 | 50,6  |
|         |        |      | 31,2  |  |         |        |      | 2,2   |  |         |        |      | 50,4  |
| 1687, 0 | 26.    | 3,1  |       |  | 1695, 0 | 36.    | 49,2 |       |  | 1703, 0 | 32.    | 4,2  |       |
| 2       | 25.    | 31,6 | 31,5  |  | 2       | 36.    | 43,2 | 6,0   |  | 2       | 32.    | 55,7 | 51,5  |
| 4       | 25.    | 0,9  | 30,7  |  | 4       | 36.    | 33,7 | 9,5   |  | 4       | 33.    | 45,6 | 49,9  |
| 6       | 24.    | 32,7 | 28,2  |  | 6       | 36.    | 19,8 | 13,9  |  | 6       | 34.    | 30,6 | 45,0  |
| 8       | 24.    | 7,3  | 25,4  |  | 8       | 36.    | 2,1  | 17,7  |  | 8       | 35.    | 11,7 | 41,1  |
|         |        |      | 24,8  |  |         |        |      | 19,1  |  |         |        |      | 38,0  |
| 1688, 0 | 23.    | 42,5 |       |  | 1696, 0 | 35.    | 43,0 |       |  | 1704, 0 | 35.    | 49,7 |       |
| 2       | 23.    | 20,9 | 21,6  |  | 2       | 35.    | 21,2 | 21,8  |  | 2       | 36.    | 21,9 | 32,2  |
| 4       | 23.    | 2,3  | 18,6  |  | 4       | 34.    | 55,9 | 25,3  |  | 4       | 36.    | 49,2 | 27,3  |
| 6       | 22.    | 47,9 | 14,4  |  | 6       | 34.    | 29,1 | 26,8  |  | 6       | 37.    | 10,6 | 21,4  |
| 8       | 22.    | 36,3 | 11,6  |  | 8       | 33.    | 59,1 | 30,0  |  | 8       | 37.    | 25,6 | 15,0  |
|         |        |      | 7,0   |  |         |        |      | 34,9  |  |         |        |      | 7,3   |
| 1689, 0 | 22.    | 29,3 |       |  | 1697, 0 | 33.    | 24,2 |       |  | 1705, 0 | 37.    | 32,9 |       |
| 2       | 22.    | 28,4 | 0,9   |  | 2       | 32.    | 48,5 | 35,7  |  | 2       | 37.    | 34,4 | 1,5   |
| 4       | 22.    | 31,5 | 3,1   |  | 4       | 32.    | 12,5 | 36,0  |  | 4       | 37.    | 32,0 | 2,4   |
| 6       | 22.    | 38,8 | 7,3   |  | 6       | 31.    | 36,0 | 36,5  |  | 6       | 37.    | 24,7 | 7,3   |
| 8       | 22.    | 50,3 | 11,5  |  | 8       | 30.    | 57,4 | 38,6  |  | 8       | 37.    | 12,4 | 12,3  |
|         |        |      | 16,4  |  |         |        |      | 38,8  |  |         |        |      | 16,7  |
| 1690, 0 | 23.    | 6,7  |       |  | 1698, 0 | 30.    | 18,6 |       |  | 1706, 0 | 36.    | 55,7 |       |
| 2       | 23.    | 30,8 | 24,1  |  | 2       | 29.    | 39,2 | 39,4  |  | 2       | 36.    | 34,3 | 21,4  |
| 4       | 24.    | 0,0  | 29,2  |  | 4       | 29.    | 0,4  | 38,8  |  | 4       | 36.    | 10,1 | 24,2  |
| 6       | 24.    | 31,3 | 31,3  |  | 6       | 28.    | 23,1 | 37,3  |  | 6       | 35.    | 43,7 | 26,4  |
| 8       | 25.    | 6,5  | 35,2  |  | 8       | 27.    | 48,9 | 34,2  |  | 8       | 35.    | 15,7 | 28,0  |
|         |        |      | 39,5  |  |         |        |      | 31,4  |  |         |        |      | 29,0  |
| 1691, 0 | 25.    | 46,0 |       |  | 1699, 0 | 27.    | 17,5 |       |  | 1707, 0 | 34.    | 46,7 |       |
| 2       | 26.    | 28,9 | 42,9  |  | 2       | 26.    | 48,2 | 29,3  |  | 2       | 34.    | 17,7 | 29,0  |
| 4       | 27.    | 15,4 | 46,5  |  | 4       | 26.    | 21,1 | 27,1  |  | 4       | 33.    | 48,6 | 29,1  |
| 6       | 28.    | 2,8  | 47,4  |  | 6       | 25.    | 56,3 | 24,8  |  | 6       | 33.    | 19,6 | 29,0  |
| 8       | 28.    | 51,4 | 48,6  |  | 8       | 25.    | 35,7 | 20,6  |  | 8       | 32.    | 50,3 | 29,3  |
|         |        |      | 50,5  |  |         |        |      | 15,8  |  |         |        |      | 28,9  |
| 1692, 0 | 29.    | 41,9 |       |  | 1700, 0 | 25.    | 19,9 |       |  | 1708, 0 | 32.    | 21,4 |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1708, 0 | 32.    | 21,4 | 28,6  |  | 1716, 0 | 41.    | 8,1  | 3,8   |  | 1724, 0 | 37.    | 30,0 | 28,2  |
| 2       | 31.    | 52,8 |       |  | 2       | 41.    | 4,3  |       |  | 2       | 37.    | 58,2 |       |
| 4       | 31.    | 26,7 |       |  | 4       | 40.    | 56,2 |       |  | 4       | 38.    | 24,8 |       |
| 6       | 31.    | 1,5  |       |  | 6       | 40.    | 43,5 |       |  | 6       | 38.    | 48,7 |       |
| 8       | 30.    | 38,2 |       |  | 8       | 40.    | 26,9 |       |  | 8       | 39.    | 9,8  |       |
|         |        |      | 20,7  |  |         |        |      | 18,2  |  |         |        |      | 18,2  |
| 1709, 0 | 30.    | 17,5 | 17,5  |  | 1717, 0 | 40.    | 8,7  | 22,4  |  | 1725, 0 | 39.    | 28,0 | 15,8  |
| 2       | 30.    | 0,0  |       |  | 2       | 39.    | 46,3 |       |  | 2       | 39.    | 43,8 |       |
| 4       | 29.    | 44,4 |       |  | 4       | 39.    | 20,2 |       |  | 4       | 39.    | 54,9 |       |
| 6       | 29.    | 30,3 |       |  | 6       | 38.    | 52,1 |       |  | 6       | 40.    | 2,5  |       |
| 8       | 29.    | 18,3 |       |  | 8       | 38.    | 23,7 |       |  | 8       | 40.    | 6,4  |       |
|         |        |      | 10,2  |  |         |        |      | 29,7  |  |         |        |      | 0,5   |
| 1710, 0 | 29.    | 8,1  | 6,2   |  | 1718, 0 | 37.    | 54,0 | 30,6  |  | 1726, 0 | 40.    | 6,9  | 2,6   |
| 2       | 29.    | 1,9  |       |  | 2       | 37.    | 23,4 |       |  | 2       | 40.    | 4,3  |       |
| 4       | 28.    | 59,1 |       |  | 4       | 36.    | 52,0 |       |  | 4       | 39.    | 56,2 |       |
| 6       | 28.    | 58,9 |       |  | 6       | 36.    | 20,7 |       |  | 6       | 39.    | 44,4 |       |
| 8       | 29.    | 2,2  |       |  | 8       | 35.    | 49,4 |       |  | 8       | 39.    | 30,4 |       |
|         |        |      | 7,2   |  |         |        |      | 30,8  |  |         |        |      | 15,1  |
| 1711, 0 | 29.    | 9,4  | 11,1  |  | 1719, 0 | 35.    | 18,6 | 29,3  |  | 1727, 0 | 39.    | 15,3 | 18,8  |
| 2       | 29.    | 20,5 |       |  | 2       | 34.    | 49,3 |       |  | 2       | 38.    | 56,5 |       |
| 4       | 29.    | 37,0 |       |  | 4       | 34.    | 24,0 |       |  | 4       | 38.    | 35,0 |       |
| 6       | 29.    | 56,4 |       |  | 6       | 34.    | 0,4  |       |  | 6       | 38.    | 12,0 |       |
| 8       | 30.    | 18,9 |       |  | 8       | 33.    | 38,6 |       |  | 8       | 37.    | 48,5 |       |
|         |        |      | 27,0  |  |         |        |      | 19,9  |  |         |        |      | 24,5  |
| 1712, 0 | 30.    | 45,9 | 31,9  |  | 1720, 0 | 33.    | 18,7 | 18,0  |  | 1728, 0 | 37.    | 24,0 | 25,0  |
| 2       | 31.    | 17,8 |       |  | 2       | 33.    | 0,7  |       |  | 2       | 36.    | 59,0 |       |
| 4       | 31.    | 52,9 |       |  | 4       | 32.    | 47,2 |       |  | 4       | 36.    | 33,7 |       |
| 6       | 32.    | 29,7 |       |  | 6       | 32.    | 36,9 |       |  | 6       | 36.    | 9,2  |       |
| 8       | 33.    | 8,5  |       |  | 8       | 32.    | 29,2 |       |  | 8       | 35.    | 46,0 |       |
|         |        |      | 41,8  |  |         |        |      | 4,5   |  |         |        |      | 22,9  |
| 1713, 0 | 33.    | 50,3 | 43,1  |  | 1721, 0 | 32.    | 24,7 | 2,0   |  | 1729, 0 | 35.    | 23,1 | 22,2  |
| 2       | 34.    | 33,4 |       |  | 2       | 32.    | 26,7 |       |  | 2       | 35.    | 0,9  |       |
| 4       | 35.    | 17,5 |       |  | 4       | 32.    | 30,8 |       |  | 4       | 34.    | 40,4 |       |
| 6       | 36.    | 0,9  |       |  | 6       | 32.    | 38,4 |       |  | 6       | 34.    | 21,8 |       |
| 8       | 36.    | 42,9 |       |  | 8       | 32.    | 49,4 |       |  | 8       | 34.    | 5,2  |       |
|         |        |      | 41,8  |  |         |        |      | 13,5  |  |         |        |      | 14,8  |
| 1714, 0 | 37.    | 24,7 | 41,0  |  | 1722, 0 | 33.    | 2,9  | 18,1  |  | 1730, 0 | 33.    | 50,4 | 14,1  |
| 2       | 38.    | 5,7  |       |  | 2       | 33.    | 21,0 |       |  | 2       | 33.    | 36,3 |       |
| 4       | 38.    | 43,0 |       |  | 4       | 33.    | 42,9 |       |  | 4       | 33.    | 24,2 |       |
| 6       | 39.    | 16,0 |       |  | 6       | 34.    | 6,8  |       |  | 6       | 33.    | 14,0 |       |
| 8       | 39.    | 45,1 |       |  | 8       | 34.    | 32,2 |       |  | 8       | 33.    | 5,9  |       |
|         |        |      | 26,1  |  |         |        |      | 27,5  |  |         |        |      | 5,8   |
| 1715, 0 | 40.    | 11,2 | 19,7  |  | 1723, 0 | 34.    | 59,7 | 28,0  |  | 1731, 0 | 33.    | 0,1  | 1,9   |
| 2       | 40.    | 30,9 |       |  | 2       | 35.    | 27,7 |       |  | 2       | 32.    | 58,2 |       |
| 4       | 40.    | 47,0 |       |  | 4       | 35.    | 58,8 |       |  | 4       | 32.    | 58,6 |       |
| 6       | 40.    | 58,8 |       |  | 6       | 36.    | 30,5 |       |  | 6       | 32.    | 59,4 |       |
| 8       | 41.    | 5,9  |       |  | 8       | 37.    | 0,7  |       |  | 8       | 33.    | 2,2  |       |
|         |        |      | 2,2   |  |         |        |      | 29,3  |  |         |        |      | 3,8   |
| 1716, 0 | 41.    | 8,1  |       |  | 1724, 0 | 37.    | 30,0 |       |  | 1732, 0 | 33.    | 6,0  |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1732, 0 | 33.    | 6,0  | 7,6   |  | 1740, 0 | 36.    | 9,9  | 3,1   |  | 1748, 0 | 26.    | 22,5 | 19,9  |
| 2       | 33.    | 13,6 | 9,3   |  | 2       | 36.    | 6,8  | 1,8   |  | 2       | 26.    | 2,6  | 15,6  |
| 4       | 33.    | 22,9 | 11,1  |  | 4       | 36.    | 5,0  | 0,4   |  | 4       | 25.    | 47,0 | 9,6   |
| 6       | 33.    | 34,0 | 13,3  |  | 6       | 36.    | 5,4  | 2,6   |  | 6       | 25.    | 37,4 | 5,4   |
| 8       | 33.    | 47,3 | 14,5  |  | 8       | 36.    | 8,0  | 3,9   |  | 8       | 25.    | 32,0 | 0,4   |
| 1733, 0 | 34.    | 1,8  | 15,2  |  | 1741, 0 | 36.    | 11,9 | 4,7   |  | 1749, 0 | 25.    | 32,4 | 9,1   |
| 2       | 34.    | 17,0 | 16,3  |  | 2       | 36.    | 16,6 | 6,2   |  | 2       | 25.    | 41,5 | 12,4  |
| 4       | 34.    | 33,3 | 17,2  |  | 4       | 36.    | 22,8 | 7,2   |  | 4       | 25.    | 53,9 | 19,0  |
| 6       | 34.    | 50,5 | 18,0  |  | 6       | 36.    | 30,0 | 7,4   |  | 6       | 26.    | 12,9 | 24,8  |
| 8       | 35.    | 8,5  | 18,5  |  | 8       | 36.    | 37,4 | 7,6   |  | 8       | 26.    | 37,7 | 30,0  |
| 1734, 0 | 35.    | 27,0 | 18,6  |  | 1742, 0 | 36.    | 45,0 | 8,2   |  | 1750, 0 | 27.    | 7,7  | 36,3  |
| 2       | 35.    | 45,6 | 18,9  |  | 2       | 36.    | 53,2 | 8,0   |  | 2       | 27.    | 44,0 | 41,4  |
| 4       | 36.    | 4,5  | 19,9  |  | 4       | 37.    | 1,2  | 6,7   |  | 4       | 28.    | 25,4 | 45,9  |
| 6       | 36.    | 24,4 | 19,9  |  | 6       | 37.    | 7,9  | 4,8   |  | 6       | 29.    | 11,3 | 48,8  |
| 8       | 36.    | 44,3 | 18,3  |  | 8       | 37.    | 12,7 | 3,4   |  | 8       | 30.    | 0,1  | 52,3  |
| 1735, 0 | 37.    | 2,6  | 17,2  |  | 1743, 0 | 37.    | 16,1 | 1,3   |  | 1751, 0 | 30.    | 52,4 | 54,6  |
| 2       | 37.    | 19,8 | 13,8  |  | 2       | 37.    | 17,4 | 3,2   |  | 2       | 31.    | 47,0 | 55,7  |
| 4       | 37.    | 33,6 | 12,6  |  | 4       | 37.    | 14,2 | 4,8   |  | 4       | 32.    | 42,7 | 56,1  |
| 6       | 37.    | 46,2 | 11,3  |  | 6       | 37.    | 9,4  | 7,1   |  | 6       | 33.    | 38,8 | 55,9  |
| 8       | 37.    | 57,5 | 10,4  |  | 8       | 37.    | 2,3  | 9,0   |  | 8       | 34.    | 34,7 | 54,8  |
| 1736, 0 | 38.    | 7,9  | 8,2   |  | 1744, 0 | 36.    | 53,3 | 14,9  |  | 1752, 0 | 35.    | 29,6 | 53,0  |
| 2       | 38.    | 16,1 | 5,9   |  | 2       | 36.    | 38,4 | 17,6  |  | 2       | 36.    | 22,6 | 52,7  |
| 4       | 38.    | 22,0 | 1,6   |  | 4       | 36.    | 20,8 | 20,3  |  | 4       | 37.    | 15,3 | 47,7  |
| 6       | 38.    | 23,6 | 0,8   |  | 6       | 36.    | 0,5  | 23,5  |  | 6       | 38.    | 3,0  | 44,3  |
| 8       | 38.    | 24,4 | 0,6   |  | 8       | 35.    | 37,0 | 26,1  |  | 8       | 38.    | 47,3 | 38,9  |
| 1737, 0 | 38.    | 23,8 | 3,3   |  | 1745, 0 | 35.    | 10,9 | 28,9  |  | 1753, 0 | 39.    | 26,2 | 36,4  |
| 2       | 38.    | 20,5 | 5,5   |  | 2       | 34.    | 42,0 | 31,7  |  | 2       | 40.    | 2,6  | 29,3  |
| 4       | 38.    | 15,0 | 7,8   |  | 4       | 34.    | 10,3 | 34,4  |  | 4       | 40.    | 31,9 | 24,5  |
| 6       | 38.    | 7,2  | 8,9   |  | 6       | 33.    | 35,9 | 37,5  |  | 6       | 40.    | 56,4 | 20,3  |
| 8       | 37.    | 58,3 | 10,4  |  | 8       | 32.    | 58,4 | 39,2  |  | 8       | 41.    | 16,7 | 14,8  |
| 1738, 0 | 37.    | 47,9 | 11,3  |  | 1746, 0 | 32.    | 19,2 | 40,7  |  | 1754, 0 | 41.    | 31,5 | 7,6   |
| 2       | 37.    | 36,6 | 11,9  |  | 2       | 31.    | 38,5 | 41,0  |  | 2       | 41.    | 39,1 | 5,5   |
| 4       | 37.    | 24,7 | 12,1  |  | 4       | 30.    | 57,5 | 40,2  |  | 4       | 41.    | 44,6 | 0,8   |
| 6       | 37.    | 12,6 | 12,6  |  | 6       | 30.    | 17,3 | 37,9  |  | 6       | 41.    | 43,8 | 5,9   |
| 8       | 37.    | 0,0  | 12,2  |  | 8       | 29.    | 39,4 | 38,3  |  | 8       | 41.    | 37,9 | 8,9   |
| 1739, 0 | 36.    | 47,8 | 11,3  |  | 1747, 0 | 29.    | 1,1  | 37,5  |  | 1755, 0 | 41.    | 29,0 | 15,2  |
| 2       | 36.    | 36,5 | 8,6   |  | 2       | 28.    | 23,6 | 34,9  |  | 2       | 41.    | 13,8 | 18,4  |
| 4       | 36.    | 27,9 | 6,7   |  | 4       | 27.    | 48,7 | 30,4  |  | 4       | 40.    | 55,4 | 22,1  |
| 6       | 36.    | 21,2 | 6,5   |  | 6       | 27.    | 18,3 | 29,9  |  | 6       | 40.    | 33,3 | 26,1  |
| 8       | 36.    | 14,7 | 4,8   |  | 8       | 26.    | 48,4 | 25,9  |  | 8       | 40.    | 7,2  | 28,9  |
| 1740, 0 | 36.    | 9,9  |       |  | 1748, 0 | 26.    | 22,5 |       |  | 1756, 0 | 39.    | 38,3 |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1756, 0 | 39.    | 38,3 |       |  | 1764, 0 | 39.    | 52,9 | 24,6  |  | 1772, 0 | 33.    | 41,5 | 35,0  |
| 2       | 39.    | 4,8  | 33,5  |  | 2       | 40.    | 17,5 | 18,3  |  | 2       | 34.    | 16,5 | 37,9  |
| 4       | 38.    | 29,9 | 34,9  |  | 4       | 40.    | 35,8 | 11,9  |  | 4       | 34.    | 54,4 | 40,2  |
| 6       | 37.    | 51,6 | 38,3  |  | 6       | 40.    | 47,7 | 6,1   |  | 6       | 35.    | 34,6 | 42,4  |
| 8       | 37.    | 11,6 | 40,0  |  | 8       | 40.    | 53,8 | 0,3   |  | 8       | 36.    | 17,0 | 45,5  |
|         |        |      | 41,0  |  |         |        |      |       |  |         |        |      |       |
| 1757, 0 | 36.    | 30,6 |       |  | 1765, 0 | 40.    | 54,1 | 5,3   |  | 1773, 0 | 37.    | 2,5  | 45,5  |
| 2       | 35.    | 46,9 | 43,7  |  | 2       | 40.    | 48,8 | 11,0  |  | 2       | 37.    | 48,0 | 43,7  |
| 4       | 35.    | 2,2  | 44,7  |  | 4       | 40.    | 37,8 | 15,4  |  | 4       | 38.    | 31,7 | 43,0  |
| 6       | 34.    | 16,4 | 45,8  |  | 6       | 40.    | 22,4 | 18,8  |  | 6       | 39.    | 14,7 | 41,5  |
| 8       | 33.    | 29,9 | 46,5  |  | 8       | 40.    | 3,6  | 22,1  |  | 8       | 39.    | 56,2 | 40,2  |
|         |        |      | 46,0  |  |         |        |      |       |  |         |        |      |       |
| 1758, 0 | 32.    | 43,9 |       |  | 1766, 0 | 39.    | 41,5 | 24,7  |  | 1774, 0 | 40.    | 36,4 | 36,6  |
| 2       | 31.    | 58,0 | 45,9  |  | 2       | 39.    | 16,8 | 26,8  |  | 2       | 41.    | 13,0 | 31,9  |
| 4       | 31.    | 12,9 | 45,1  |  | 4       | 38.    | 50,0 | 28,7  |  | 4       | 41.    | 44,9 | 28,5  |
| 6       | 30.    | 30,0 | 42,9  |  | 6       | 38.    | 21,3 | 30,6  |  | 6       | 42.    | 13,4 | 25,3  |
| 8       | 29.    | 49,8 | 40,2  |  | 8       | 37.    | 50,7 | 31,5  |  | 8       | 42.    | 38,7 | 21,4  |
|         |        |      | 35,6  |  |         |        |      |       |  |         |        |      |       |
| 1759, 0 | 29.    | 14,2 |       |  | 1767, 0 | 37.    | 19,2 | 31,7  |  | 1775, 0 | 43.    | 0,1  | 13,5  |
| 2       | 28.    | 42,5 | 31,7  |  | 2       | 36.    | 47,5 | 31,0  |  | 2       | 43.    | 13,6 | 9,6   |
| 4       | 28.    | 16,1 | 26,4  |  | 4       | 36.    | 16,5 | 30,6  |  | 4       | 43.    | 23,2 | 5,3   |
| 6       | 27.    | 53,3 | 22,8  |  | 6       | 35.    | 45,9 | 29,6  |  | 6       | 43.    | 28,5 | 1,3   |
| 8       | 27.    | 36,3 | 17,0  |  | 8       | 35.    | 16,3 | 29,0  |  | 8       | 43.    | 29,8 | 1,9   |
|         |        |      | 9,7   |  |         |        |      |       |  |         |        |      |       |
| 1760, 0 | 27.    | 26,6 |       |  | 1768, 0 | 34.    | 47,3 | 28,9  |  | 1776, 0 | 43.    | 27,9 | 6,4   |
| 2       | 27.    | 23,2 | 3,4   |  | 2       | 34.    | 18,4 | 25,9  |  | 2       | 43.    | 21,5 | 11,7  |
| 4       | 27.    | 27,3 | 4,1   |  | 4       | 33.    | 52,5 | 24,9  |  | 4       | 43.    | 9,8  | 17,2  |
| 6       | 27.    | 37,9 | 10,6  |  | 6       | 33.    | 27,6 | 22,6  |  | 6       | 42.    | 52,6 | 18,6  |
| 8       | 27.    | 55,2 | 17,3  |  | 8       | 33.    | 5,0  | 20,7  |  | 8       | 42.    | 34,0 | 21,6  |
|         |        |      | 24,7  |  |         |        |      |       |  |         |        |      |       |
| 1761, 0 | 28.    | 19,9 |       |  | 1769, 0 | 32.    | 44,3 | 20,3  |  | 1777, 0 | 42.    | 12,4 | 22,9  |
| 2       | 28.    | 52,2 | 32,3  |  | 2       | 32.    | 24,0 | 18,1  |  | 2       | 41.    | 49,5 | 25,5  |
| 4       | 29.    | 33,1 | 40,9  |  | 4       | 32.    | 5,9  | 15,4  |  | 4       | 41.    | 24,0 | 29,8  |
| 6       | 30.    | 17,4 | 44,3  |  | 6       | 31.    | 50,5 | 13,4  |  | 6       | 40.    | 54,2 | 29,7  |
| 8       | 31.    | 5,3  | 47,9  |  | 8       | 31.    | 37,1 | 9,5   |  | 8       | 40.    | 24,5 | 28,9  |
|         |        |      | 52,3  |  |         |        |      |       |  |         |        |      |       |
| 1762, 0 | 31.    | 57,6 |       |  | 1770, 0 | 31.    | 27,6 | 4,8   |  | 1778, 0 | 39.    | 55,6 | 29,9  |
| 2       | 32.    | 51,3 | 53,7  |  | 2       | 31.    | 22,8 | 1,0   |  | 2       | 39.    | 25,7 | 29,9  |
| 4       | 33.    | 45,3 | 54,0  |  | 4       | 31.    | 21,8 | 2,5   |  | 4       | 38.    | 55,8 | 29,8  |
| 6       | 34.    | 40,1 | 54,8  |  | 6       | 31.    | 24,3 | 6,1   |  | 6       | 38.    | 26,0 | 29,0  |
| 8       | 35.    | 34,1 | 54,0  |  | 8       | 31.    | 30,4 | 9,5   |  | 8       | 37.    | 57,0 | 27,8  |
|         |        |      | 53,7  |  |         |        |      |       |  |         |        |      |       |
| 1763, 0 | 36.    | 27,8 |       |  | 1771, 0 | 31.    | 39,9 | 16,3  |  | 1779, 0 | 37.    | 29,2 | 24,7  |
| 2       | 37.    | 18,9 | 51,1  |  | 2       | 31.    | 56,2 | 19,7  |  | 2       | 37.    | 4,5  | 23,9  |
| 4       | 38.    | 4,5  | 45,6  |  | 4       | 32.    | 15,9 | 23,9  |  | 4       | 36.    | 40,6 | 22,7  |
| 6       | 38.    | 45,3 | 40,8  |  | 6       | 32.    | 39,8 | 28,6  |  | 6       | 36.    | 17,9 | 21,0  |
| 8       | 39.    | 21,2 | 35,9  |  | 8       | 33.    | 8,4  | 33,1  |  | 8       | 35.    | 56,9 | 17,5  |
|         |        |      | 31,7  |  |         |        |      |       |  |         |        |      |       |
| 1764, 0 | 39.    | 52,9 |       |  | 1772, 0 | 33.    | 41,5 |       |  | 1780, 0 | 35.    | 39,4 |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |  | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|--|---------|--------|------|-------|--|---------|--------|------|-------|
|         | M.     | S.   |       |  |         | M.     | S.   |       |  |         | M.     | S.   |       |
| 1780, 0 | 35.    | 39,4 | 14,4  |  | 1788, 0 | 39.    | 4,9  | 17,3  |  | 1796, 0 | 39.    | 0,0  | 0,9   |
| 2       | 35.    | 25,0 | 11,0  |  | 2       | 38.    | 47,6 | 17,9  |  | 2       | 38.    | 59,1 | 1,5   |
| 4       | 35.    | 14,0 | 6,6   |  | 4       | 38.    | 29,7 | 17,9  |  | 4       | 38.    | 57,6 | 2,4   |
| 6       | 35.    | 7,4  | 5,3   |  | 6       | 38.    | 11,8 | 17,3  |  | 6       | 38.    | 55,2 | 3,5   |
| 8       | 35.    | 2,1  | 2,7   |  | 8       | 37.    | 54,5 | 15,1  |  | 8       | 38.    | 51,7 | 5,0   |
| 1781, 0 | 34.    | 59,4 | 3,6   |  | 1789, 0 | 37.    | 39,4 | 14,6  |  | 1797, 0 | 38.    | 46,7 | 7,6   |
| 2       | 35.    | 3,0  | 7,3   |  | 2       | 37.    | 24,8 | 14,0  |  | 2       | 38.    | 39,1 | 9,3   |
| 4       | 35.    | 10,3 | 10,0  |  | 4       | 37.    | 10,8 | 12,8  |  | 4       | 38.    | 29,8 | 8,0   |
| 6       | 35.    | 20,3 | 12,3  |  | 6       | 36.    | 58,0 | 11,5  |  | 6       | 38.    | 21,8 | 7,3   |
| 8       | 35.    | 32,6 | 14,2  |  | 8       | 36.    | 46,5 | 10,5  |  | 8       | 38.    | 14,5 | 6,8   |
| 1782, 0 | 35.    | 46,8 | 17,9  |  | 1790, 0 | 36.    | 36,0 | 9,8   |  | 1798, 0 | 38.    | 7,7  | 6,4   |
| 2       | 36.    | 4,7  | 20,2  |  | 2       | 36.    | 26,2 | 8,9   |  | 2       | 38.    | 1,3  | 6,3   |
| 4       | 36.    | 24,9 | 22,3  |  | 4       | 36.    | 17,3 | 7,3   |  | 4       | 37.    | 55,0 | 4,9   |
| 6       | 36.    | 47,2 | 24,0  |  | 6       | 36.    | 10,0 | 5,1   |  | 6       | 37.    | 50,1 | 3,3   |
| 8       | 37.    | 11,2 | 24,6  |  | 8       | 36.    | 4,9  | 2,4   |  | 8       | 37.    | 46,8 | 2,8   |
| 1783, 0 | 37.    | 35,8 | 26,2  |  | 1791, 0 | 36.    | 2,5  | 2,7   |  | 1799, 0 | 37.    | 44,0 | 2,5   |
| 2       | 38.    | 2,0  | 25,2  |  | 2       | 35.    | 59,8 | 0,7   |  | 2       | 37.    | 41,5 | 0,9   |
| 4       | 38.    | 27,2 | 25,3  |  | 4       | 35.    | 59,1 | 1,3   |  | 4       | 37.    | 40,6 | 2,0   |
| 6       | 38.    | 52,5 | 25,7  |  | 6       | 36.    | 0,4  | 3,2   |  | 6       | 37.    | 42,6 | 3,6   |
| 8       | 39.    | 18,2 | 24,5  |  | 8       | 36.    | 3,6  | 5,1   |  | 8       | 37.    | 46,2 | 5,3   |
| 1784, 0 | 39.    | 42,7 | 21,1  |  | 1792, 0 | 36.    | 8,7  | 5,5   |  | 1800, 0 | 37.    | 51,5 | 6,0   |
| 2       | 40.    | 3,8  | 19,2  |  | 2       | 36.    | 14,2 | 6,5   |  | 2       | 37.    | 57,5 | 6,9   |
| 4       | 40.    | 23,0 | 17,9  |  | 4       | 36.    | 20,7 | 7,5   |  | 4       | 38.    | 4,4  | 7,9   |
| 6       | 40.    | 40,9 | 14,4  |  | 6       | 36.    | 28,2 | 7,1   |  | 6       | 38.    | 12,3 | 9,5   |
| 8       | 40.    | 55,3 | 12,0  |  | 8       | 36.    | 35,3 | 10,7  |  | 8       | 38.    | 21,8 | 10,8  |
| 1785, 0 | 41.    | 7,3  | 8,0   |  | 1793, 0 | 36.    | 46,0 | 11,8  |  | 1801, 0 | 38.    | 32,6 | 11,9  |
| 2       | 41.    | 15,3 | 4,5   |  | 2       | 36.    | 57,8 | 12,0  |  | 2       | 38.    | 44,5 | 11,4  |
| 4       | 41.    | 19,8 | 3,0   |  | 4       | 37.    | 9,8  | 12,3  |  | 4       | 38.    | 55,9 | 10,8  |
| 6       | 41.    | 22,8 | 1,4   |  | 6       | 37.    | 22,1 | 12,5  |  | 6       | 39.    | 6,7  | 9,0   |
| 8       | 41.    | 24,2 | 2,2   |  | 8       | 37.    | 34,6 | 12,6  |  | 8       | 39.    | 15,7 | 8,1   |
| 1786, 0 | 41.    | 22,0 | 6,8   |  | 1794, 0 | 37.    | 47,2 | 11,6  |  | 1802, 0 | 39.    | 23,8 | 5,8   |
| 2       | 41.    | 15,2 | 9,0   |  | 2       | 37.    | 58,8 | 11,9  |  | 2       | 39.    | 29,6 | 4,2   |
| 4       | 41.    | 6,2  | 10,0  |  | 4       | 38.    | 10,7 | 10,6  |  | 4       | 39.    | 33,8 | 1,3   |
| 6       | 40.    | 56,2 | 11,6  |  | 6       | 38.    | 21,3 | 9,9   |  | 6       | 39.    | 35,1 | 0,2   |
| 8       | 40.    | 44,6 | 13,4  |  | 8       | 38.    | 31,2 | 7,4   |  | 8       | 39.    | 34,9 | 4,0   |
| 1787, 0 | 40.    | 31,2 | 16,9  |  | 1795, 0 | 38.    | 38,6 | 5,6   |  | 1803, 0 | 39.    | 30,9 | 5,4   |
| 2       | 40.    | 14,3 | 17,9  |  | 2       | 38.    | 44,2 | 5,3   |  | 2       | 39.    | 25,5 | 10,6  |
| 4       | 39.    | 56,4 | 17,0  |  | 4       | 38.    | 49,5 | 4,6   |  | 4       | 39.    | 14,9 | 13,0  |
| 6       | 39.    | 39,4 | 17,4  |  | 6       | 38.    | 54,1 | 3,7   |  | 6       | 39.    | 1,9  | 17,3  |
| 8       | 39.    | 22,0 | 17,1  |  | 8       | 38.    | 57,7 | 2,2   |  | 8       | 38.    | 44,6 | 21,2  |
| 1788, 0 | 39.    | 4,9  |       |  | 1796, 0 | 39.    | 0,0  |       |  | 1804, 0 | 38.    | 23,4 |       |



TABLE XLI. Equations arising from the perturbations of Jupiter.

| YEARS.  | Equat. |      | Diff. | YEARS.  | Equat. |      | Diff. |
|---------|--------|------|-------|---------|--------|------|-------|
|         | M.     | S.   | SEC.  |         | M.     | S.   | SEC.  |
| 1804, 0 | 38.    | 23,4 | 24,2  | 1812, 0 | 37.    | 43,2 | 54,8  |
| 2       | 37.    | 59,2 | 28,2  | 2       | 38.    | 38,0 | 47,2  |
| 4       | 37.    | 31,0 | 31,2  | 4       | 39.    | 25,2 | 44,0  |
| 6       | 36.    | 59,8 | 36,2  | 6       | 40.    | 9,2  | 39,8  |
| 8       | 36.    | 23,6 | 39,7  | 8       | 40.    | 49,0 | 34,6  |
| 1805, 0 | 35.    | 43,9 | 42,1  | 1813, 0 | 41.    | 23,6 | 26,3  |
| 2       | 35.    | 1,8  | 44,2  | 2       | 41.    | 49,9 | 19,3  |
| 4       | 34.    | 17,6 | 45,8  | 4       | 42.    | 9,2  | 14,8  |
| 6       | 33.    | 31,8 | 48,5  | 6       | 42.    | 24,0 | 10,7  |
| 8       | 32.    | 43,3 | 49,8  | 8       | 42.    | 34,7 | 4,0   |
| 1806, 0 | 31.    | 53,5 | 47,4  | 1814, 0 | 42.    | 38,7 | 2,1   |
| 2       | 31.    | 6,1  | 46,5  | 2       | 42.    | 40,8 | 2,2   |
| 4       | 30.    | 19,6 | 45,5  | 4       | 42.    | 38,6 | 9,8   |
| 6       | 29.    | 34,1 | 44,8  | 6       | 42.    | 28,8 | 17,1  |
| 8       | 28.    | 49,3 | 41,9  | 8       | 42.    | 11,7 | 20,0  |
| 1807, 0 | 28.    | 7,4  | 38,3  | 1815, 0 | 41.    | 51,7 | 24,4  |
| 2       | 27.    | 29,1 | 35,7  | 2       | 41.    | 27,3 | 28,2  |
| 4       | 26.    | 53,4 | 30,5  | 4       | 40.    | 59,1 | 30,1  |
| 6       | 26.    | 22,9 | 26,1  | 6       | 40.    | 29,0 | 33,1  |
| 8       | 25.    | 56,8 | 20,7  | 8       | 39.    | 55,9 | 37,5  |
| 1808, 0 | 25.    | 36,1 | 13,1  | 1816, 0 | 39.    | 18,4 | 40,6  |
| 2       | 25.    | 23,0 | 6,5   | 2       | 38.    | 37,8 | 43,9  |
| 4       | 25.    | 16,5 | 0,1   | 4       | 37.    | 53,9 | 47,9  |
| 6       | 25.    | 16,4 | 6,8   | 6       | 37.    | 6,0  | 50,2  |
| 8       | 25.    | 23,2 | 13,3  | 8       | 36.    | 15,8 | 52,1  |
| 1809, 0 | 25.    | 36,5 | 18,6  | 1817, 0 | 35.    | 23,7 | 52,5  |
| 2       | 25.    | 55,1 | 26,2  | 2       | 34.    | 31,2 | 52,9  |
| 4       | 26.    | 21,3 | 31,1  | 4       | 33.    | 38,3 | 53,9  |
| 6       | 26.    | 52,4 | 37,5  | 6       | 32.    | 44,8 | 53,1  |
| 8       | 27.    | 29,9 | 44,2  | 8       | 31.    | 51,7 | 52,6  |
| 1810, 0 | 28.    | 14,1 | 48,1  | 1818, 0 | 30.    | 59,1 | 48,7  |
| 2       | 29.    | 2,2  | 52,4  | 2       | 30.    | 10,4 | 45,0  |
| 4       | 29.    | 54,6 | 55,5  | 4       | 29.    | 25,4 | 42,6  |
| 6       | 30.    | 50,1 | 58,0  | 6       | 28.    | 42,8 | 39,1  |
| 8       | 31.    | 48,1 | 60,5  | 8       | 28.    | 3,7  | 33,5  |
| 1811, 0 | 32.    | 48,6 | 61,9  | 1819, 0 | 27.    | 30,2 | 29,1  |
| 2       | 33.    | 50,5 | 61,4  | 2       | 27.    | 1,1  | 21,4  |
| 4       | 34.    | 51,9 | 58,1  | 4       | 26.    | 39,7 | 13,3  |
| 6       | 35.    | 50,0 | 57,0  | 6       | 26.    | 26,4 | 8,6   |
| 8       | 36.    | 47,0 | 56,2  | 8       | 26.    | 17,8 | 0,3   |
| 1812, 0 | 37.    | 43,2 |       | 1820, 0 | 26.    | 18,1 |       |



TABLE XLII. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |
|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|
|         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |
| 0       | 6.          | 45. | 45,2 | 366,9 |  | 4000    | 2.          | 57. | 17,2 | 292,6 |  | 8000    | 0.          | 42. | 46,7 | 87,7  |
| 100     | 6.          | 39. | 38,3 | 366,6 |  | 4100    | 2.          | 52. | 24,6 | 288,9 |  | 8100    | 0.          | 41. | 19,0 | 81,0  |
| 200     | 6.          | 33. | 31,7 | 366,6 |  | 4200    | 2.          | 47. | 35,7 | 285,1 |  | 8200    | 0.          | 39. | 58,0 | 74,7  |
| 300     | 6.          | 27. | 25,1 | 366,2 |  | 4300    | 2.          | 42. | 50,6 | 281,4 |  | 8300    | 0.          | 38. | 43,3 | 68,3  |
| 400     | 6.          | 21. | 18,9 | 365,9 |  | 4400    | 2.          | 38. | 9,2  | 277,3 |  | 8400    | 0.          | 37. | 35,0 | 61,8  |
| 500     | 6.          | 15. | 13,0 | 365,5 |  | 4500    | 2.          | 33. | 31,9 | 273,3 |  | 8500    | 0.          | 36. | 33,2 | 55,3  |
| 600     | 6.          | 9.  | 7,5  | 365,1 |  | 4600    | 2.          | 28. | 58,6 | 269,3 |  | 8600    | 0.          | 35. | 37,9 | 48,6  |
| 700     | 6.          | 3.  | 2,4  | 364,4 |  | 4700    | 2.          | 24. | 29,3 | 265,2 |  | 8700    | 0.          | 34. | 49,3 | 41,9  |
| 800     | 5.          | 56. | 58,0 | 363,7 |  | 4800    | 2.          | 20. | 4,1  | 260,8 |  | 8800    | 0.          | 34. | 7,4  | 35,6  |
| 900     | 5.          | 50. | 54,3 | 362,8 |  | 4900    | 2.          | 15. | 43,3 | 256,4 |  | 8900    | 0.          | 33. | 31,8 | 28,8  |
| 1000    | 5.          | 44. | 51,5 | 362,0 |  | 5000    | 2.          | 11. | 26,9 | 252,0 |  | 9000    | 0.          | 33. | 3,0  | 21,9  |
| 1100    | 5.          | 38. | 40,5 | 360,9 |  | 5100    | 2.          | 7.  | 14,9 | 247,6 |  | 9100    | 0.          | 32. | 41,1 | 15,4  |
| 1200    | 5.          | 32. | 48,6 | 360,1 |  | 5200    | 2.          | 3.  | 7,3  | 243,1 |  | 9200    | 0.          | 32. | 25,7 | 8,6   |
| 1300    | 5.          | 26. | 48,5 | 358,7 |  | 5300    | 1.          | 59. | 4,2  | 238,3 |  | 9300    | 0.          | 32. | 17,1 | 1,8   |
| 1400    | 5.          | 20. | 49,8 | 357,2 |  | 5400    | 1.          | 55. | 5,9  | 233,7 |  | 9400    | 0.          | 32. | 15,3 | 5,1   |
| 1500    | 5.          | 14. | 52,6 | 356,1 |  | 5500    | 1.          | 51. | 12,2 | 228,9 |  | 9500    | 0.          | 32. | 20,4 | 11,9  |
| 1600    | 5.          | 8.  | 56,5 | 354,8 |  | 5600    | 1.          | 47. | 23,3 | 223,9 |  | 9600    | 0.          | 32. | 32,3 | 18,9  |
| 1700    | 5.          | 3.  | 1,7  | 353,1 |  | 5700    | 1.          | 43. | 39,4 | 219,0 |  | 9700    | 0.          | 32. | 51,2 | 25,4  |
| 1800    | 4.          | 57. | 8,6  | 351,4 |  | 5800    | 1.          | 40. | 0,4  | 214,2 |  | 9800    | 0.          | 33. | 16,6 | 32,5  |
| 1900    | 4.          | 51. | 17,2 | 349,6 |  | 5900    | 1.          | 36. | 26,2 | 209,0 |  | 9900    | 0.          | 33. | 49,1 | 39,5  |
| 2000    | 4.          | 45. | 27,6 | 347,7 |  | 6000    | 1.          | 32. | 57,2 | 203,7 |  | 10000   | 0.          | 34. | 28,6 | 46,2  |
| 2100    | 4.          | 39. | 39,9 | 345,9 |  | 6100    | 1.          | 29. | 33,5 | 198,7 |  | 10100   | 0.          | 35. | 14,8 | 52,9  |
| 2200    | 4.          | 33. | 54,0 | 344,1 |  | 6200    | 1.          | 26. | 14,8 | 193,3 |  | 10200   | 0.          | 36. | 7,7  | 60,0  |
| 2300    | 4.          | 28. | 9,9  | 341,8 |  | 6300    | 1.          | 23. | 1,5  | 188,1 |  | 10300   | 0.          | 37. | 7,7  | 67,0  |
| 2400    | 4.          | 22. | 28,1 | 339,5 |  | 6400    | 1.          | 19. | 53,4 | 182,5 |  | 10400   | 0.          | 38. | 14,7 | 74,1  |
| 2500    | 4.          | 16. | 48,6 | 337,6 |  | 6500    | 1.          | 16. | 50,9 | 176,9 |  | 10500   | 0.          | 39. | 28,8 | 80,8  |
| 2600    | 4.          | 11. | 11,0 | 334,9 |  | 6600    | 1.          | 13. | 54,0 | 171,4 |  | 10600   | 0.          | 40. | 49,6 | 87,5  |
| 2700    | 4.          | 5.  | 36,1 | 332,7 |  | 6700    | 1.          | 11. | 2,6  | 165,9 |  | 10700   | 0.          | 42. | 17,1 | 94,6  |
| 2800    | 4.          | 0.  | 3,4  | 330,0 |  | 6800    | 1.          | 8.  | 16,7 | 160,2 |  | 10800   | 0.          | 43. | 51,7 | 101,4 |
| 2900    | 3.          | 54. | 33,4 | 327,3 |  | 6900    | 1.          | 5.  | 36,5 | 154,3 |  | 10900   | 0.          | 45. | 33,1 | 108,5 |
| 3000    | 3.          | 49. | 6,1  | 324,6 |  | 7000    | 1.          | 3.  | 2,2  | 148,8 |  | 11000   | 0.          | 47. | 21,6 | 115,1 |
| 3100    | 3.          | 43. | 41,5 | 321,7 |  | 7100    | 1.          | 0.  | 33,4 | 142,8 |  | 11100   | 0.          | 49. | 16,7 | 122,1 |
| 3200    | 3.          | 38. | 19,8 | 319,1 |  | 7200    | 0.          | 58. | 10,6 | 136,8 |  | 11200   | 0.          | 51. | 18,8 | 128,9 |
| 3300    | 3.          | 33. | 0,7  | 316,0 |  | 7300    | 0.          | 55. | 53,8 | 130,7 |  | 11300   | 0.          | 53. | 27,7 | 135,7 |
| 3400    | 3.          | 27. | 44,7 | 312,8 |  | 7400    | 0.          | 53. | 43,1 | 124,8 |  | 11400   | 0.          | 55. | 43,4 | 142,4 |
| 3500    | 3.          | 22. | 31,9 | 309,5 |  | 7500    | 0.          | 51. | 38,3 | 118,7 |  | 11500   | 0.          | 58. | 5,8  | 149,3 |
| 3600    | 3.          | 17. | 22,4 | 306,5 |  | 7600    | 0.          | 49. | 39,6 | 112,6 |  | 11600   | 1.          | 0.  | 35,1 | 155,9 |
| 3700    | 3.          | 12. | 15,9 | 303,1 |  | 7700    | 0.          | 47. | 47,0 | 106,4 |  | 11700   | 1.          | 3.  | 11,0 | 162,8 |
| 3800    | 3.          | 7.  | 12,8 | 299,5 |  | 7800    | 0.          | 46. | 0,6  | 100,1 |  | 11800   | 1.          | 5.  | 53,8 | 169,3 |
| 3900    | 3.          | 2.  | 13,3 | 296,1 |  | 7900    | 0.          | 44. | 20,5 | 93,8  |  | 11900   | 1.          | 8.  | 43,1 | 175,9 |
| 4000    | 2.          | 57. | 17,2 |       |  | 8000    | 0.          | 42. | 46,7 |       |  | 12000   | 1.          | 11. | 39,0 |       |



TABLE XLII. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |  | Arg. A. | Equation A. |     |      | Diff. |
|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|--|---------|-------------|-----|------|-------|
|         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |  |         | H.          | M.  | S.   |       |
| 12000   | 1.          | 11. | 39,0 | 182,6 |  | 16000   | 4.          | 27. | 15,5 | 384,6 |  | 20000   | 8.          | 56. | 21,8 | 383,2 |
| 12100   | 1.          | 14. | 41,6 | 189,1 |  | 16100   | 4.          | 33. | 40,1 | 387,4 |  | 20100   | 9.          | 2.  | 45,0 | 380,3 |
| 12200   | 1.          | 17. | 50,7 | 195,6 |  | 16200   | 4.          | 40. | 7,5  | 390,4 |  | 20200   | 9.          | 9.  | 5,3  | 377,1 |
| 12300   | 1.          | 21. | 6,3  | 202,0 |  | 16300   | 4.          | 46. | 37,9 | 392,5 |  | 20300   | 9.          | 15. | 22,4 | 373,9 |
| 12400   | 1.          | 24. | 28,3 | 208,7 |  | 16400   | 4.          | 53. | 10,4 | 395,0 |  | 20400   | 9.          | 21. | 36,3 | 370,5 |
| 12500   | 1.          | 27. | 57,0 | 214,8 |  | 16500   | 4.          | 59. | 45,4 | 397,3 |  | 20500   | 9.          | 27. | 46,8 | 366,8 |
| 12600   | 1.          | 31. | 31,8 | 221,1 |  | 16600   | 5.          | 6.  | 22,7 | 399,3 |  | 20600   | 9.          | 33. | 53,6 | 363,2 |
| 12700   | 1.          | 35. | 12,9 | 227,2 |  | 16700   | 5.          | 13. | 2,0  | 401,5 |  | 20700   | 9.          | 39. | 56,8 | 359,3 |
| 12800   | 1.          | 39. | 0,1  | 233,6 |  | 16800   | 5.          | 19. | 43,5 | 403,3 |  | 20800   | 9.          | 45. | 56,1 | 355,6 |
| 12900   | 1.          | 42. | 53,7 | 239,7 |  | 16900   | 5.          | 26. | 26,8 | 404,9 |  | 20900   | 9.          | 51. | 51,7 | 351,4 |
| 13000   | 1.          | 46. | 53,4 | 245,8 |  | 17000   | 5.          | 33. | 11,7 | 406,3 |  | 21000   | 9.          | 57. | 43,1 | 347,2 |
| 13100   | 1.          | 50. | 59,2 | 251,9 |  | 17100   | 5.          | 39. | 58,0 | 407,9 |  | 21100   | 10.         | 3.  | 30,3 | 343,2 |
| 13200   | 1.          | 55. | 11,1 | 257,7 |  | 17200   | 5.          | 46. | 45,9 | 409,1 |  | 21200   | 10.         | 9.  | 13,5 | 338,9 |
| 13300   | 1.          | 59. | 28,8 | 263,3 |  | 17300   | 5.          | 53. | 35,0 | 410,1 |  | 21300   | 10.         | 14. | 52,4 | 334,2 |
| 13400   | 2.          | 3.  | 52,1 | 269,4 |  | 17400   | 6.          | 0.  | 25,1 | 411,1 |  | 21400   | 10.         | 20. | 26,6 | 329,6 |
| 13500   | 2.          | 8.  | 21,5 | 275,0 |  | 17500   | 6.          | 7.  | 16,2 | 412,0 |  | 21500   | 10.         | 25. | 56,2 | 324,9 |
| 13600   | 2.          | 12. | 56,5 | 280,5 |  | 17600   | 6.          | 14. | 8,2  | 412,3 |  | 21600   | 10.         | 31. | 21,1 | 320,0 |
| 13700   | 2.          | 17. | 37,0 | 286,2 |  | 17700   | 6.          | 21. | 0,5  | 413,1 |  | 21700   | 10.         | 36. | 41,1 | 315,4 |
| 13800   | 2.          | 22. | 23,2 | 291,5 |  | 17800   | 6.          | 27. | 53,6 | 413,6 |  | 21800   | 10.         | 41. | 56,5 | 310,2 |
| 13900   | 2.          | 27. | 14,7 | 297,0 |  | 17900   | 6.          | 34. | 47,2 | 413,5 |  | 21900   | 10.         | 47. | 6,7  | 305,2 |
| 14000   | 2.          | 32. | 11,7 | 302,6 |  | 18000   | 6.          | 41. | 40,7 | 413,4 |  | 22000   | 10.         | 52. | 11,9 | 299,7 |
| 14100   | 2.          | 37. | 14,3 | 306,8 |  | 18100   | 6.          | 48. | 34,1 | 413,9 |  | 22100   | 10.         | 57. | 11,6 | 294,5 |
| 14200   | 2.          | 42. | 21,1 | 312,6 |  | 18200   | 6.          | 55. | 28,0 | 413,3 |  | 22200   | 11.         | 2.  | 6,1  | 289,3 |
| 14300   | 2.          | 47. | 33,7 | 317,2 |  | 18300   | 7.          | 2.  | 21,3 | 412,9 |  | 22300   | 11.         | 6.  | 55,4 | 283,9 |
| 14400   | 2.          | 52. | 50,9 | 322,3 |  | 18400   | 7.          | 9.  | 14,2 | 412,2 |  | 22400   | 11.         | 11. | 39,3 | 278,3 |
| 14500   | 2.          | 58. | 13,2 | 327,0 |  | 18500   | 7.          | 16. | 6,4  | 411,5 |  | 22500   | 11.         | 16. | 17,6 | 272,4 |
| 14600   | 3.          | 3.  | 40,2 | 331,8 |  | 18600   | 7.          | 22. | 57,9 | 410,5 |  | 22600   | 11.         | 20. | 50,0 | 266,6 |
| 14700   | 3.          | 9.  | 12,0 | 336,2 |  | 18700   | 7.          | 29. | 48,4 | 409,7 |  | 22700   | 11.         | 25. | 16,6 | 261,1 |
| 14800   | 3.          | 14. | 48,2 | 340,8 |  | 18800   | 7.          | 36. | 38,1 | 408,5 |  | 22800   | 11.         | 29. | 37,7 | 255,3 |
| 14900   | 3.          | 20. | 29,0 | 344,8 |  | 18900   | 7.          | 43. | 26,6 | 407,3 |  | 22900   | 11.         | 33. | 53,0 | 249,1 |
| 15000   | 3.          | 26. | 13,8 | 349,1 |  | 19000   | 7.          | 50. | 13,9 | 405,7 |  | 23000   | 11.         | 38. | 2,1  | 243,1 |
| 15100   | 3.          | 32. | 2,9  | 353,4 |  | 19100   | 7.          | 56. | 59,6 | 404,3 |  | 23100   | 11.         | 42. | 5,2  | 237,0 |
| 15200   | 3.          | 37. | 56,3 | 357,3 |  | 19200   | 8.          | 3.  | 43,9 | 402,4 |  | 23200   | 11.         | 46. | 2,2  | 231,2 |
| 15300   | 3.          | 43. | 53,6 | 361,2 |  | 19300   | 8.          | 10. | 26,3 | 400,6 |  | 23300   | 11.         | 49. | 53,4 | 225,0 |
| 15400   | 3.          | 49. | 54,8 | 364,9 |  | 19400   | 8.          | 17. | 6,9  | 398,3 |  | 23400   | 11.         | 53. | 38,4 | 218,1 |
| 15500   | 3.          | 55. | 59,7 | 368,4 |  | 19500   | 8.          | 23. | 45,2 | 396,3 |  | 23500   | 11.         | 57. | 16,5 | 212,3 |
| 15600   | 4.          | 2.  | 8,1  | 372,1 |  | 19600   | 8.          | 30. | 21,5 | 394,0 |  | 23600   | 12.         | 0.  | 48,8 | 205,7 |
| 15700   | 4.          | 8.  | 20,2 | 375,3 |  | 19700   | 8.          | 36. | 55,5 | 391,5 |  | 23700   | 12.         | 4.  | 14,5 | 199,4 |
| 15800   | 4.          | 14. | 35,5 | 378,4 |  | 19800   | 8.          | 43. | 27,0 | 388,8 |  | 23800   | 12.         | 7.  | 33,9 | 193,1 |
| 15900   | 4.          | 20. | 53,9 | 381,6 |  | 19900   | 8.          | 49. | 55,8 | 386,0 |  | 23900   | 12.         | 10. | 47,0 | 186,4 |
| 16000   | 4.          | 27. | 15,5 |       |  | 20000   | 8.          | 56. | 21,8 |       |  | 24000   | 12.         | 13. | 53,4 |       |



TABLE XLII. Equation of the center of Jupiter, with the principal part of the Equation of Light.

| Arg. A. | Equation A.  | Diff. | Arg. A. | Equation A.  | Diff. | Arg. A. | Equation A.  | Diff. |
|---------|--------------|-------|---------|--------------|-------|---------|--------------|-------|
|         | H. M. S.     | SEC.  |         | H. M. S.     | SEC.  |         | H. M. S.     | SEC.  |
| 24000   | 12. 13. 53,4 | 179,7 | 28000   | 12. 45. 32,5 | 89,8  | 32000   | 10. 33. 20,6 | 293,9 |
| 24100   | 12. 16. 53,1 | 173,4 | 28100   | 12. 44. 2,7  | 96,1  | 32100   | 10. 28. 26,7 | 297,1 |
| 24200   | 12. 19. 46,5 | 166,0 | 28200   | 12. 42. 26,6 | 102,4 | 32200   | 10. 23. 29,6 | 300,5 |
| 24300   | 12. 22. 32,5 | 160,4 | 28300   | 12. 40. 44,2 | 108,6 | 32300   | 10. 18. 29,1 | 304,1 |
| 24400   | 12. 25. 12,9 | 153,4 | 28400   | 12. 38. 55,6 | 114,6 | 32400   | 10. 13. 25,0 | 307,3 |
| 24500   | 12. 27. 46,3 | 146,5 | 28500   | 12. 37. 1,0  | 120,7 | 32500   | 10. 8. 17,7  | 310,7 |
| 24600   | 12. 30. 12,8 | 139,7 | 28600   | 12. 35. 0,3  | 126,9 | 32600   | 10. 3. 7,0   | 313,7 |
| 24700   | 12. 32. 32,5 | 132,9 | 28700   | 12. 32. 53,4 | 132,9 | 32700   | 9. 57. 53,3  | 316,9 |
| 24800   | 12. 34. 45,4 | 126,2 | 28800   | 12. 30. 40,5 | 138,7 | 32800   | 9. 52. 36,4  | 319,7 |
| 24900   | 12. 36. 51,6 | 119,3 | 28900   | 12. 28. 21,8 | 144,8 | 32900   | 9. 47. 16,7  | 322,7 |
| 25000   | 12. 38. 50,9 | 112,5 | 29000   | 12. 25. 57,0 | 150,3 | 33000   | 9. 41. 54,0  | 325,4 |
| 25100   | 12. 40. 43,4 | 105,7 | 29100   | 12. 23. 26,7 | 156,4 | 33100   | 9. 36. 28,6  | 328,2 |
| 25200   | 12. 42. 29,1 | 98,8  | 29200   | 12. 20. 50,3 | 162,1 | 33200   | 9. 31. 0,4   | 330,7 |
| 25300   | 12. 44. 7,9  | 91,7  | 29300   | 12. 18. 8,2  | 167,6 | 33300   | 9. 25. 29,7  | 333,2 |
| 25400   | 12. 45. 39,6 | 85,0  | 29400   | 12. 15. 20,6 | 173,4 | 33400   | 9. 19. 56,5  | 335,5 |
| 25500   | 12. 47. 4,6  | 78,0  | 29500   | 12. 12. 27,2 | 178,7 | 33500   | 9. 14. 21,0  | 337,9 |
| 25600   | 12. 48. 22,6 | 71,3  | 29600   | 12. 9. 28,5  | 184,4 | 33600   | 9. 8. 43,1   | 340,4 |
| 25700   | 12. 49. 33,9 | 64,4  | 29700   | 12. 6. 24,1  | 189,6 | 33700   | 9. 3. 2,7    | 342,5 |
| 25800   | 12. 50. 38,3 | 57,2  | 29800   | 12. 3. 14,5  | 195,0 | 33800   | 8. 57. 20,2  | 344,5 |
| 25900   | 12. 51. 35,5 | 50,5  | 29900   | 11. 59. 59,5 | 200,3 | 33900   | 8. 51. 35,7  | 346,5 |
| 26000   | 12. 52. 26,0 | 43,5  | 30000   | 11. 56. 39,2 | 205,4 | 34000   | 8. 45. 49,2  | 348,4 |
| 26100   | 12. 53. 9,5  | 36,7  | 30100   | 11. 53. 13,8 | 210,6 | 34100   | 8. 40. 0,8   | 350,2 |
| 26200   | 12. 53. 46,2 | 30,0  | 30200   | 11. 49. 43,2 | 215,6 | 34200   | 8. 34. 10,6  | 351,9 |
| 26300   | 12. 54. 16,2 | 23,0  | 30300   | 11. 46. 7,6  | 220,8 | 34300   | 8. 28. 18,7  | 353,6 |
| 26400   | 12. 54. 39,2 | 16,2  | 30400   | 11. 42. 26,8 | 225,6 | 34400   | 8. 22. 25,1  | 355,1 |
| 26500   | 12. 54. 55,4 | 9,3   | 30500   | 11. 38. 41,2 | 230,4 | 34500   | 8. 16. 30,0  | 356,2 |
| 26600   | 12. 55. 4,7  | 2,4   | 30600   | 11. 34. 50,8 | 235,0 | 34600   | 8. 10. 33,8  | 357,9 |
| 26700   | 12. 55. 7,1  | 4,2   | 30700   | 11. 30. 55,8 | 239,7 | 34700   | 8. 4. 35,9   | 359,1 |
| 26800   | 12. 55. 2,9  | 11,0  | 30800   | 11. 26. 56,1 | 244,4 | 34800   | 7. 58. 36,8  | 360,1 |
| 26900   | 12. 54. 51,9 | 17,7  | 30900   | 11. 22. 51,7 | 249,3 | 34900   | 7. 52. 36,7  | 361,3 |
| 27000   | 12. 54. 34,2 | 24,5  | 31000   | 11. 18. 42,4 | 253,3 | 35000   | 7. 46. 35,4  | 362,1 |
| 27100   | 12. 54. 9,7  | 31,2  | 31100   | 11. 14. 29,1 | 257,8 | 35100   | 7. 40. 33,3  | 363,1 |
| 27200   | 12. 53. 38,5 | 37,8  | 31200   | 11. 10. 11,3 | 262,2 | 35200   | 7. 34. 30,2  | 364,0 |
| 27300   | 12. 53. 0,7  | 44,5  | 31300   | 11. 5. 49,1  | 266,3 | 35300   | 7. 28. 26,2  | 364,5 |
| 27400   | 12. 52. 16,2 | 51,0  | 31400   | 11. 1. 22,8  | 270,5 | 35400   | 7. 22. 21,7  | 365,1 |
| 27500   | 12. 51. 25,2 | 57,4  | 31500   | 10. 56. 52,3 | 274,5 | 35500   | 7. 16. 16,6  | 365,8 |
| 27600   | 12. 50. 27,8 | 64,1  | 31600   | 10. 52. 17,8 | 278,4 | 35600   | 7. 10. 10,8  | 366,0 |
| 27700   | 12. 49. 23,7 | 70,6  | 31700   | 10. 47. 39,4 | 282,6 | 35700   | 7. 4. 4,8    | 366,3 |
| 27800   | 12. 48. 13,1 | 77,1  | 31800   | 10. 42. 56,8 | 286,2 | 35800   | 6. 57. 58,5  | 366,6 |
| 27900   | 12. 46. 56,0 | 83,5  | 31900   | 10. 38. 10,6 | 290,6 | 35900   | 6. 51. 51,9  | 366,7 |
| 28000   | 12. 45. 32,5 |       | 32000   | 10. 33. 20,0 |       | 36000   | 6. 45. 45,2  |       |



TABLE XLIII. EQUATION C.

| ARG.<br>C. | Equat. C.<br>H. M. S. | Diff.<br>SEC. | ARG.<br>C. | Equat. C.<br>H. M. S. | Diff.<br>SEC. | ARG.<br>C. | Equat. C.<br>H. M. S. | Diff.<br>SEC. |
|------------|-----------------------|---------------|------------|-----------------------|---------------|------------|-----------------------|---------------|
| 0          | 0. 56. 53,1           | 215,3         | 3400       | 1. 44. 46,3           | 121,0         | 6700       | 0. 7. 10,3            | 98,1          |
| 100        | 1. 0. 28,4            | 214,9         | 3500       | 1. 42. 45,3           | 131,8         | 6800       | 0. 5. 32,2            | 86,0          |
| 200        | 1. 4. 3,3             | 212,8         | 3600       | 1. 40. 33,5           | 141,9         | 6900       | 0. 4. 6,2             | 73,6          |
| 300        | 1. 7. 36,1            | 210,4         | 3700       | 1. 38. 11,6           | 151,6         | 7000       | 0. 2. 52,6            | 60,8          |
| 400        | 1. 11. 6,5            | 207,9         | 3800       | 1. 35. 40,0           | 160,7         | 7100       | 0. 1. 51,8            | 47,8          |
| 500        | 1. 14. 34,4           | 201,6         | 3900       | 1. 32. 59,3           | 169,1         | 7200       | 0. 1. 4,0             | 34,7          |
| 600        | 1. 17. 56,0           | 197,7         | 4000       | 1. 30. 10,2           | 176,9         | 7300       | 0. 0. 29,3            | 21,3          |
| 700        | 1. 21. 13,7           | 191,8         | 4100       | 1. 27. 13,3           | 184,0         | 7400       | 0. 0. 8,0             | 8,0           |
| 800        | 1. 24. 25,5           | 185,0         | 4200       | 1. 24. 9,3            | 190,4         | 7500       | 0. 0. 0,0             | 5,6           |
| 900        | 1. 27. 30,5           | 177,9         | 4300       | 1. 20. 58,9           | 195,9         | 7600       | 0. 0. 5,6             | 18,9          |
| 1000       | 1. 30. 28,4           | 169,7         | 4400       | 1. 17. 43,0           | 199,8         | 7700       | 0. 0. 24,5            | 32,5          |
| 1100       | 1. 33. 18,1           | 160,9         | 4500       | 1. 14. 23,2           | 205,9         | 7800       | 0. 0. 57,0            | 45,6          |
| 1200       | 1. 35. 59,0           | 151,6         | 4600       | 1. 10. 57,3           | 208,2         | 7900       | 0. 1. 42,6            | 58,8          |
| 1300       | 1. 38. 30,6           | 141,7         | 4700       | 1. 7. 29,1            | 210,6         | 8000       | 0. 2. 41,4            | 71,8          |
| 1400       | 1. 40. 52,3           | 131,2         | 4800       | 1. 3. 58,5            | 212,5         | 8100       | 0. 3. 53,2            | 84,2          |
| 1500       | 1. 43. 3,5            | 120,0         | 4900       | 1. 0. 26,0            | 212,9         | 8200       | 0. 5. 17,4            | 96,7          |
| 1600       | 1. 45. 3,5            | 108,6         | 5000       | 0. 56. 53,1           | 212,9         | 8300       | 0. 6. 54,1            | 108,6         |
| 1700       | 1. 46. 52,1           | 96,7          | 5100       | 0. 53. 20,2           | 212,5         | 8400       | 0. 8. 42,7            | 120,0         |
| 1800       | 1. 48. 28,8           | 84,2          | 5200       | 0. 49. 47,7           | 210,6         | 8500       | 0. 10. 42,7           | 131,2         |
| 1900       | 1. 49. 53,0           | 71,8          | 5300       | 0. 46. 17,1           | 208,2         | 8600       | 0. 12. 53,9           | 141,7         |
| 2000       | 1. 51. 4,8            | 58,8          | 5400       | 0. 42. 48,9           | 205,9         | 8700       | 0. 15. 15,6           | 151,6         |
| 2100       | 1. 52. 3,6            | 45,6          | 5500       | 0. 39. 23,0           | 199,8         | 8800       | 0. 17. 47,2           | 160,9         |
| 2200       | 1. 52. 49,2           | 32,5          | 5600       | 0. 36. 3,2            | 195,9         | 8900       | 0. 20. 28,1           | 169,7         |
| 2300       | 1. 53. 21,7           | 18,9          | 5700       | 0. 32. 47,3           | 190,4         | 9000       | 0. 23. 17,8           | 177,9         |
| 2400       | 1. 53. 40,6           | 5,6           | 5800       | 0. 29. 36,9           | 184,0         | 9100       | 0. 26. 15,7           | 185,0         |
| 2500       | 1. 53. 46,2           | 8,0           | 5900       | 0. 26. 32,9           | 176,9         | 9200       | 0. 29. 20,7           | 191,8         |
| 2600       | 1. 53. 38,2           | 21,3          | 6000       | 0. 23. 36,0           | 169,1         | 9300       | 0. 32. 32,5           | 197,7         |
| 2700       | 1. 53. 16,9           | 34,7          | 6100       | 0. 20. 46,9           | 160,7         | 9400       | 0. 35. 50,2           | 201,6         |
| 2800       | 1. 52. 42,2           | 47,8          | 6200       | 0. 18. 6,2            | 151,6         | 9500       | 0. 39. 11,8           | 207,9         |
| 2900       | 1. 51. 54,4           | 60,8          | 6300       | 0. 15. 34,6           | 141,9         | 9600       | 0. 42. 39,7           | 210,4         |
| 3000       | 1. 50. 53,6           | 73,6          | 6400       | 0. 13. 12,7           | 131,8         | 9700       | 0. 46. 10,1           | 212,8         |
| 3100       | 1. 49. 40,0           | 86,0          | 6500       | 0. 11. 0,9            | 121,0         | 9800       | 0. 49. 42,9           | 214,9         |
| 3200       | 1. 48. 14,0           | 98,1          | 6600       | 0. 8. 59,9            | 109,6         | 9900       | 0. 53. 17,8           | 215,3         |
| 3300       | 1. 46. 35,9           | 109,6         | 6700       | 0. 7. 10,3            | 00,0          | 10000      | 0. 56. 53,1           |               |
| 3400       | 1. 44. 46,3           |               |            |                       |               |            |                       |               |



TABLE XLIV. EQUATION D.

| ARG. D. |     | Equat. D. |      | Diff. | ARG. D. |     | Equat. D. |      | Diff. |
|---------|-----|-----------|------|-------|---------|-----|-----------|------|-------|
|         |     | M.        | S.   | SEC.  |         |     | M.        | S.   | SEC.  |
| 750     | 750 | 0.        | 0,0  | 0,1   | 0       | 500 | 1.        | 13,6 | 4,6   |
| 760     | 740 | 0.        | 0,1  | 0,5   | 10      | 490 | 1.        | 18,2 | 4,6   |
| 770     | 730 | 0.        | 0,6  | 0,7   | 20      | 480 | 1.        | 22,8 | 4,6   |
|         |     |           |      |       |         |     |           |      | 4,6   |
| 780     | 720 | 0.        | 1,3  | 1,0   | 30      | 470 | 1.        | 27,4 | 4,5   |
| 790     | 710 | 0.        | 2,3  | 1,3   | 40      | 460 | 1.        | 31,9 | 4,5   |
| 800     | 700 | 0.        | 3,6  | 1,6   | 50      | 450 | 1.        | 36,4 | 4,3   |
|         |     |           |      |       |         |     |           |      | 4,2   |
| 810     | 690 | 0.        | 5,2  | 1,8   | 60      | 440 | 1.        | 40,7 | 4,1   |
| 820     | 680 | 0.        | 7,0  | 2,1   | 70      | 430 | 1.        | 44,9 | 4,0   |
| 830     | 670 | 0.        | 9,1  | 2,3   | 80      | 420 | 1.        | 49,0 | 3,8   |
|         |     |           |      |       |         |     |           |      | 3,7   |
| 840     | 660 | 0.        | 11,4 | 2,6   | 90      | 410 | 1.        | 53,0 | 3,4   |
| 850     | 650 | 0.        | 14,0 | 2,9   | 100     | 400 | 1.        | 56,8 | 3,3   |
| 860     | 640 | 0.        | 16,9 | 3,1   | 110     | 390 | 2.        | 0,5  | 3,1   |
|         |     |           |      |       |         |     |           |      | 2,9   |
| 870     | 630 | 0.        | 20,0 | 3,3   | 120     | 380 | 2.        | 3,9  | 2,6   |
| 880     | 620 | 0.        | 23,3 | 3,4   | 130     | 370 | 2.        | 7,2  | 2,3   |
| 890     | 610 | 0.        | 26,7 | 3,7   | 140     | 360 | 2.        | 10,3 | 2,1   |
|         |     |           |      |       |         |     |           |      | 1,8   |
| 900     | 600 | 0.        | 30,4 | 3,8   | 150     | 350 | 2.        | 13,2 | 1,6   |
| 910     | 590 | 0.        | 34,2 | 4,0   | 160     | 340 | 2.        | 15,8 | 1,3   |
| 920     | 580 | 0.        | 38,2 | 4,1   | 170     | 330 | 2.        | 18,1 | 1,0   |
|         |     |           |      |       |         |     |           |      | 0,7   |
| 930     | 570 | 0.        | 42,3 | 4,2   | 180     | 320 | 2.        | 20,2 | 0,5   |
| 940     | 560 | 0.        | 46,5 | 4,3   | 190     | 310 | 2.        | 22,0 | 0,1   |
| 950     | 550 | 0.        | 50,8 | 4,5   | 200     | 300 | 2.        | 23,6 |       |
|         |     |           |      |       |         |     |           |      |       |
| 960     | 540 | 0.        | 55,3 | 4,5   | 210     | 290 | 2.        | 24,9 |       |
| 970     | 530 | 0.        | 59,8 | 4,6   | 220     | 280 | 2.        | 25,9 |       |
| 980     | 520 | 1.        | 4,4  | 4,6   | 230     | 270 | 2.        | 26,6 |       |
|         |     |           |      |       |         |     |           |      |       |
| 990     | 510 | 1.        | 9,0  | 4,6   | 240     | 260 | 2.        | 27,1 |       |
| 0       | 500 | 1.        | 13,6 |       | 250     | 250 | 2.        | 27,2 |       |



TABLE XLV: EQUATION E.

| ARG.<br>E. | Equat. E.<br>SEC. | ARG.<br>E. | Equat. E.<br>SEC. | ARG.<br>E. | Equat. E.<br>SEC. |
|------------|-------------------|------------|-------------------|------------|-------------------|
| 0          | 13,1              | 340        | 17,2              | 670        | 8,5               |
| 10         | 14,5              | 350        | 16,8              | 680        | 8,1               |
| 20         | 16,0              | 360        | 16,5              | 690        | 7,6               |
| 30         | 17,4              | 370        | 16,2              | 700        | 7,1               |
| 40         | 18,7              | 380        | 15,9              | 710        | 6,6               |
| 50         | 19,9              | 390        | 15,6              | 720        | 6,0               |
| 60         | 21,1              | 400        | 15,3              | 730        | 5,4               |
| 70         | 22,2              | 410        | 15,1              | 740        | 4,7               |
| 80         | 23,0              | 420        | 14,8              | 750        | 4,1               |
| 90         | 23,9              | 430        | 14,6              | 760        | 3,5               |
| 100        | 24,7              | 440        | 14,3              | 770        | 3,0               |
| 110        | 25,2              | 450        | 14,1              | 780        | 2,3               |
| 120        | 25,7              | 460        | 13,9              | 790        | 1,8               |
| 130        | 26,0              | 470        | 13,7              | 800        | 1,3               |
| 140        | 26,1              | 480        | 13,6              | 810        | 0,8               |
| 150        | 26,2              | 490        | 13,3              | 820        | 0,5               |
| 160        | 26,1              | 500        | 13,1              | 830        | 0,3               |
| 170        | 25,9              | 510        | 12,9              | 840        | 0,1               |
| 180        | 25,7              | 520        | 12,6              | 850        | 0,0               |
| 190        | 25,4              | 530        | 12,4              | 860        | 0,1               |
| 200        | 24,9              | 540        | 12,3              | 870        | 0,2               |
| 210        | 24,4              | 550        | 12,1              | 880        | 0,5               |
| 220        | 23,9              | 560        | 11,9              | 890        | 1,0               |
| 230        | 23,2              | 570        | 11,6              | 900        | 1,5               |
| 240        | 22,7              | 580        | 11,4              | 910        | 2,3               |
| 250        | 22,1              | 590        | 11,1              | 920        | 3,2               |
| 260        | 21,5              | 600        | 10,9              | 930        | 4,0               |
| 270        | 20,8              | 610        | 10,6              | 940        | 5,1               |
| 280        | 20,3              | 620        | 10,3              | 950        | 6,3               |
| 290        | 19,6              | 630        | 10,0              | 960        | 7,5               |
| 300        | 19,1              | 640        | 9,7               | 970        | 8,8               |
| 310        | 18,6              | 650        | 9,4               | 980        | 10,2              |
| 320        | 18,0              | 660        | 8,9               | 990        | 11,7              |
| 330        | 17,6              | 670        | 8,5               | 1000       | 13,1              |
| 340        | 17,2              |            |                   |            |                   |



TABLE XLVI. REDUCTIONS H and I.

| ARGUMENT<br>H, I. |      | Red.<br>H | Diff. | Red.<br>I | ARGUMENT<br>H, I. |       | Red.<br>H | Diff. | Red.<br>I |
|-------------------|------|-----------|-------|-----------|-------------------|-------|-----------|-------|-----------|
|                   |      | M. S.     | SEC.  | SEC.      |                   |       | M. S.     | SEC.  | SEC.      |
| 0                 | 5000 | 2. 47,0   | 20,9  | 1,4       | 2500              | 7500  | 2. 47,0   | 20,9  | 1,4       |
| 100               | 5100 | 2. 26,1   | 20,7  | 1,2       | 2600              | 7600  | 3. 7,9    | 20,7  | 1,6       |
| 200               | 5200 | 2. 5,4    | 19,9  | 1,0       | 2700              | 7700  | 3. 28,6   | 19,9  | 1,8       |
| 300               | 5300 | 1. 45,5   | 19,0  | 0,8       | 2800              | 7800  | 3. 48,5   | 19,0  | 2,0       |
| 400               | 5400 | 1. 26,5   | 17,7  | 0,7       | 2900              | 7900  | 4. 7,5    | 17,7  | 2,1       |
| 500               | 5500 | 1. 8,8    | 16,2  | 0,6       | 3000              | 8000  | 4. 25,2   | 16,2  | 2,2       |
| 600               | 5600 | 0. 52,6   | 14,4  | 0,4       | 3100              | 8100  | 4. 41,4   | 14,4  | 2,4       |
| 700               | 5700 | 0. 38,2   | 12,3  | 0,3       | 3200              | 8200  | 4. 55,8   | 12,3  | 2,5       |
| 800               | 5800 | 0. 25,9   | 10,2  | 0,2       | 3300              | 8300  | 5. 8,1    | 10,2  | 2,6       |
| 900               | 5900 | 0. 15,7   | 7,6   | 0,1       | 3400              | 8400  | 5. 18,3   | 7,6   | 2,7       |
| 1000              | 6000 | 0. 8,1    | 5,3   | 0,0       | 3500              | 8500  | 5. 25,9   | 5,3   | 2,8       |
| 1100              | 6100 | 0. 2,8    | 2,6   | 0,0       | 3600              | 8600  | 5. 31,2   | 2,6   | 2,8       |
| 1200              | 6200 | 0. 0,2    | 0,0   | 0,0       | 3700              | 8700  | 5. 33,8   | 0,0   | 2,8       |
| 1300              | 6300 | 0. 0,2    | 2,6   | 0,0       | 3800              | 8800  | 5. 33,8   | 2,6   | 2,8       |
| 1400              | 6400 | 0. 2,8    | 5,3   | 0,0       | 3900              | 8900  | 5. 31,2   | 5,3   | 2,8       |
| 1500              | 6500 | 0. 8,1    | 7,6   | 0,0       | 4000              | 9000  | 5. 25,9   | 7,6   | 2,8       |
| 1600              | 6600 | 0. 15,7   | 10,2  | 0,1       | 4100              | 9100  | 5. 18,3   | 10,2  | 2,7       |
| 1700              | 6700 | 0. 25,9   | 12,3  | 0,2       | 4200              | 9200  | 5. 8,1    | 12,3  | 2,6       |
| 1800              | 6800 | 0. 38,2   | 14,4  | 0,3       | 4300              | 9300  | 4. 55,8   | 14,4  | 2,5       |
| 1900              | 6900 | 0. 52,6   | 16,2  | 0,4       | 4400              | 9400  | 4. 41,4   | 16,2  | 2,4       |
| 2000              | 7000 | 1. 8,8    | 17,7  | 0,6       | 4500              | 9500  | 4. 25,2   | 17,7  | 2,2       |
| 2100              | 7100 | 1. 26,5   | 19,0  | 0,7       | 4600              | 9600  | 4. 7,5    | 19,0  | 2,1       |
| 2200              | 7200 | 1. 45,5   | 19,9  | 0,8       | 4700              | 9700  | 3. 48,5   | 19,9  | 2,0       |
| 2300              | 7300 | 2. 5,4    | 20,7  | 1,0       | 4800              | 9800  | 3. 28,6   | 20,7  | 1,8       |
| 2400              | 7400 | 2. 26,1   | 20,9  | 1,2       | 4900              | 9900  | 3. 7,9    | 20,9  | 1,6       |
| 2500              | 7500 | 2. 47,0   |       | 1,4       | 5000              | 10000 | 2. 47,0   |       | 1,4       |



TABLE XLVII. REDUCTIONS H+I and H+K.

| ARG. (H+I)<br>ARG. (H+K) |      | Red.<br>H+I<br>SEC. | Red.<br>H+K<br>SEC. | ARG. (H+I)<br>ARG. (H+K) |      | Red.<br>H+I<br>SEC. | Red.<br>H+K<br>SEC. |
|--------------------------|------|---------------------|---------------------|--------------------------|------|---------------------|---------------------|
| 0                        | 5000 | 31,0                | 4,6                 | 7500                     | 7500 | 0,0                 | 9,2                 |
| 100                      | 4900 | 33,0                | 4,3                 | 7600                     | 7400 | 0,1                 | 9,1                 |
| 200                      | 4800 | 34,9                | 4,0                 | 7700                     | 7300 | 0,2                 | 9,1                 |
| 300                      | 4700 | 36,8                | 3,7                 | 7800                     | 7200 | 0,6                 | 9,1                 |
| 400                      | 4600 | 38,7                | 3,5                 | 7900                     | 7100 | 1,0                 | 9,0                 |
| 500                      | 4500 | 40,6                | 3,2                 | 8000                     | 7000 | 1,5                 | 8,9                 |
| 600                      | 4400 | 42,4                | 2,9                 | 8100                     | 6900 | 2,2                 | 8,8                 |
| 700                      | 4300 | 44,2                | 2,7                 | 8200                     | 6800 | 3,0                 | 8,7                 |
| 800                      | 4200 | 45,9                | 2,4                 | 8300                     | 6700 | 3,8                 | 8,6                 |
| 900                      | 4100 | 47,7                | 2,2                 | 8400                     | 6600 | 4,8                 | 8,5                 |
| 1000                     | 4000 | 49,2                | 1,9                 | 8500                     | 6500 | 5,9                 | 8,3                 |
| 1100                     | 3900 | 50,8                | 1,7                 | 8600                     | 6400 | 7,1                 | 8,1                 |
| 1200                     | 3800 | 52,2                | 1,5                 | 8700                     | 6300 | 8,4                 | 7,9                 |
| 1300                     | 3700 | 53,6                | 1,3                 | 8800                     | 6200 | 9,8                 | 7,7                 |
| 1400                     | 3600 | 54,9                | 1,1                 | 8900                     | 6100 | 11,2                | 7,5                 |
| 1500                     | 3500 | 56,1                | 0,9                 | 9000                     | 6000 | 12,8                | 7,3                 |
| 1600                     | 3400 | 57,2                | 0,7                 | 9100                     | 5900 | 14,4                | 7,0                 |
| 1700                     | 3300 | 58,2                | 0,6                 | 9200                     | 5800 | 16,1                | 6,8                 |
| 1800                     | 3200 | 59,0                | 0,5                 | 9300                     | 5700 | 17,8                | 6,5                 |
| 1900                     | 3100 | 59,8                | 0,4                 | 9400                     | 5600 | 19,6                | 6,3                 |
| 2000                     | 3000 | 60,5                | 0,3                 | 9500                     | 5500 | 21,4                | 6,0                 |
| 2100                     | 2900 | 61,0                | 0,2                 | 9600                     | 5400 | 23,3                | 5,7                 |
| 2200                     | 2800 | 61,4                | 0,1                 | 9700                     | 5300 | 25,2                | 5,5                 |
| 2300                     | 2700 | 61,8                | 0,1                 | 9800                     | 5200 | 27,1                | 5,2                 |
| 2400                     | 2600 | 61,9                | 0,1                 | 9900                     | 5100 | 29,0                | 4,9                 |
| 2500                     | 2500 | 62,0                | 0,0                 | 0                        | 5000 | 31,0                | 4,6                 |



TABLE XLVIII. The Numbers H, I, and K; of which the Sum M is the Argument of the Semi-duration.

| ARGUMENT<br>H, I, K. |      | Number<br>H | Diff. | Number<br>I | Diff. | Number<br>K | Diff. |
|----------------------|------|-------------|-------|-------------|-------|-------------|-------|
| 0                    | 5000 | 1,85582     |       | 0,12571     |       | 0,01847     |       |
| 100                  | 4900 | 1,94084     | 8502  | 0,11782     | 789   | 0,01963     | 116   |
| 200                  | 4800 | 2,02552     | 8468  | 0,10996     | 786   | 0,02079     | 116   |
|                      |      |             | 8401  |             | 781   |             | 114   |
| 300                  | 4700 | 2,10953     | 8301  | 0,10215     |       | 0,02193     |       |
| 400                  | 4600 | 2,19254     | 8168  | 0,09446     | 769   | 0,02306     | 113   |
| 500                  | 4500 | 2,27422     |       | 0,08686     | 760   | 0,02418     | 112   |
|                      |      |             | 8003  |             | 743   |             | 109   |
| 600                  | 4400 | 2,35425     | 7806  | 0,07943     |       | 0,02527     |       |
| 700                  | 4300 | 2,43231     | 7579  | 0,07219     | 724   | 0,02633     | 106   |
| 800                  | 4200 | 2,50810     |       | 0,06515     | 704   | 0,02737     | 104   |
|                      |      |             | 7321  |             | 680   |             | 100   |
| 900                  | 4100 | 2,58131     | 7035  | 0,05835     |       | 0,02837     |       |
| 1000                 | 4000 | 2,65166     | 6721  | 0,05182     | 653   | 0,02932     | 95    |
| 1100                 | 3900 | 2,71887     |       | 0,04558     | 624   | 0,03024     | 92    |
|                      |      |             | 6381  |             | 592   |             | 87    |
| 1200                 | 3800 | 2,78268     | 6014  | 0,03966     |       | 0,03111     |       |
| 1300                 | 3700 | 2,84282     | 5625  | 0,03407     | 559   | 0,03193     | 82    |
| 1400                 | 3600 | 2,89907     |       | 0,02885     | 522   | 0,03271     | 78    |
|                      |      |             | 5214  |             | 484   |             | 70    |
| 1500                 | 3500 | 2,95121     | 4781  | 0,02401     |       | 0,03341     |       |
| 1600                 | 3400 | 2,99902     | 4329  | 0,01957     | 444   | 0,03407     | 66    |
| 1700                 | 3300 | 3,04231     |       | 0,01555     | 402   | 0,03466     | 59    |
|                      |      |             | 3862  |             | 358   |             | 52    |
| 1800                 | 3200 | 3,08093     | 3378  | 0,01197     |       | 0,03518     |       |
| 1900                 | 3100 | 3,11471     | 2881  | 0,00883     | 314   | 0,03564     | 46    |
| 2000                 | 3000 | 3,14352     |       | 0,00615     | 268   | 0,03604     | 40    |
|                      |      |             | 2573  |             | 220   |             | 32    |
| 2100                 | 2900 | 3,16725     | 1856  | 0,00395     |       | 0,03636     |       |
| 2200                 | 2800 | 3,18581     | 1331  | 0,00223     | 172   | 0,03661     | 25    |
| 2300                 | 2700 | 3,19912     |       | 0,00099     | 124   | 0,03680     | 19    |
|                      |      |             | 800   |             | 74    |             | 10    |
| 2400                 | 2600 | 3,20712     |       | 0,00025     |       | 0,03690     |       |
| 2500                 | 2500 | 3,20979     | 267   | 0,00000     | 25    | 0,03694     | 4     |

The Number H is taken with Argument H; the Number I, with Argument I; and the Number K, with Argument K. Also,  $H+I+K=M$ , and M is the Argument used in finding the Semi-duration in the following Table.



TABLE XLVIII. The Numbers H, I, and K; of which the Sum M is the Argument of the Semi-duration.

| ARGUMENT<br>H, I, K. |      | Number<br>H | Diff. | Number<br>I | Diff. | Number<br>K | Diff. |
|----------------------|------|-------------|-------|-------------|-------|-------------|-------|
| 7500                 | 7500 | 0,50185     | 267   | 0,25142     | 25    | 0,00000     | 4     |
| 7600                 | 7400 | 0,50452     | 800   | 0,25117     | 74    | 0,00004     | 10    |
| 7700                 | 7300 | 0,51252     | 1331  | 0,25043     | 124   | 0,00014     | 19    |
| 7800                 | 7200 | 0,52583     | 1856  | 0,24919     | 172   | 0,00033     | 25    |
| 7900                 | 7100 | 0,54439     | 2373  | 0,24747     | 220   | 0,00058     | 32    |
| 8000                 | 7000 | 0,56812     | 2881  | 0,24527     | 268   | 0,00090     | 40    |
| 8100                 | 6900 | 0,59693     | 3378  | 0,24259     | 314   | 0,00130     | 46    |
| 8200                 | 6800 | 0,63071     | 3862  | 0,23945     | 358   | 0,00176     | 52    |
| 8300                 | 6700 | 0,66933     | 4329  | 0,23587     | 402   | 0,00228     | 59    |
| 8400                 | 6600 | 0,71262     | 4781  | 0,23185     | 444   | 0,00287     | 66    |
| 8500                 | 6500 | 0,76043     | 5214  | 0,22741     | 484   | 0,00353     | 70    |
| 8600                 | 6400 | 0,81257     | 5625  | 0,22257     | 522   | 0,00423     | 78    |
| 8700                 | 6300 | 0,86882     | 6014  | 0,21735     | 559   | 0,00501     | 82    |
| 8800                 | 6200 | 0,92896     | 6381  | 0,21176     | 592   | 0,00583     | 87    |
| 8900                 | 6100 | 0,99277     | 6721  | 0,20584     | 624   | 0,00670     | 92    |
| 9000                 | 6000 | 1,05998     | 7035  | 0,19960     | 653   | 0,00762     | 95    |
| 9100                 | 5900 | 1,13033     | 7321  | 0,19307     | 680   | 0,00857     | 100   |
| 9200                 | 5800 | 1,20354     | 7579  | 0,18627     | 704   | 0,00957     | 104   |
| 9300                 | 5700 | 1,27933     | 7806  | 0,17923     | 724   | 0,01061     | 106   |
| 9400                 | 5600 | 1,35739     | 8003  | 0,17199     | 743   | 0,01167     | 109   |
| 9500                 | 5500 | 1,43742     | 8168  | 0,16456     | 760   | 0,01276     | 112   |
| 9600                 | 5400 | 1,51910     | 8301  | 0,15696     | 769   | 0,01388     | 113   |
| 9700                 | 5300 | 1,60211     | 8401  | 0,14927     | 781   | 0,01501     | 114   |
| 9800                 | 5200 | 1,68612     | 8468  | 0,14146     | 786   | 0,01615     | 116   |
| 9900                 | 5100 | 1,77080     | 8502  | 0,13360     | 789   | 0,01731     | 116   |
| 0                    | 5000 | 1,85582     |       | 0,12571     |       | 0,01847     |       |

The Number H is taken with Argument I; the Number I with Argument H; and the Number K with Argument M. Also  $H+I+K=M$ , and M is the Argument of the Semi-duration in the following Table.



TABLE XLIX. Semi-duration.

| ARG. M. |        | Semi-duration. |      | Diff. | N<br>+ | ARG. M. |        | Semi-duration. |      | Diff. | N<br>± |
|---------|--------|----------------|------|-------|--------|---------|--------|----------------|------|-------|--------|
|         |        | H. M. S.       | SEC. |       |        |         |        | H. M. S.       | SEC. |       |        |
| 2,0000  | 2,0000 | 2. 23. 10      | 0    |       | +1,000 | 2,3700  | 1,6300 | 2. 13. 0       |      |       | +0,782 |
| 2,0100  | 1,9900 | 2. 23. 10      | 2    |       | 1,000  | 2,3800  | 1,6200 | 2. 12. 26      | 34   |       | 0,767  |
| 2,0200  | 1,9800 | 2. 23. 8       | 2    |       | 0,999  | 2,3900  | 1,6100 | 2. 11. 50      | 36   |       | 0,756  |
| 2,0300  | 1,9700 | 2. 23. 6       | 3    |       | 0,999  | 2,4000  | 1,6000 | 2. 11. 13      | 37   |       | 0,742  |
|         |        |                |      |       |        |         |        |                | 38   |       |        |
| 2,0400  | 1,9600 | 2. 23. 3       | 4    |       | 0,998  | 2,4100  | 1,5900 | 2. 10. 35      | 39   |       | 0,728  |
| 2,0500  | 1,9500 | 2. 22. 59      | 4    |       | 0,996  | 2,4200  | 1,5800 | 2. 9. 56       | 41   |       | 0,713  |
| 2,0600  | 1,9400 | 2. 22. 55      | 6    |       | 0,995  | 2,4300  | 1,5700 | 2. 9. 15       | 41   |       | 0,698  |
| 2,0700  | 1,9300 | 2. 22. 49      | 7    |       | 0,993  | 2,4400  | 1,5600 | 2. 8. 34       | 43   |       | 0,682  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,0800  | 1,9200 | 2. 22. 42      | 7    |       | 0,990  | 2,4500  | 1,5500 | 2. 7. 51       | 44   |       | 0,666  |
| 2,0900  | 1,9100 | 2. 22. 35      | 8    |       | 0,988  | 2,4600  | 1,5400 | 2. 7. 7        | 45   |       | 0,650  |
| 2,1000  | 1,9000 | 2. 22. 27      | 9    |       | 0,985  | 2,4700  | 1,5300 | 2. 6. 22       | 46   |       | 0,633  |
| 2,1100  | 1,8900 | 2. 22. 18      | 10   |       | 0,982  | 2,4800  | 1,5200 | 2. 5. 36       | 48   |       | 0,615  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,1200  | 1,8800 | 2. 22. 8       | 11   |       | 0,978  | 2,4900  | 1,5100 | 2. 4. 48       | 49   |       | 0,596  |
| 2,1300  | 1,8700 | 2. 21. 57      | 12   |       | 0,974  | 2,5000  | 1,5000 | 2. 3. 59       | 50   |       | 0,577  |
| 2,1400  | 1,8600 | 2. 21. 45      | 12   |       | 0,970  | 2,5100  | 1,4900 | 2. 3. 9        | 52   |       | 0,558  |
| 2,1500  | 1,8500 | 2. 21. 33      | 14   |       | 0,966  | 2,5200  | 1,4800 | 2. 2. 17       | 53   |       | 0,538  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,1600  | 1,8400 | 2. 21. 19      | 14   |       | 0,961  | 2,5300  | 1,4700 | 2. 1. 24       | 54   |       | 0,517  |
| 2,1700  | 1,8300 | 2. 21. 5       | 15   |       | 0,956  | 2,5400  | 1,4600 | 2. 0. 30       | 56   |       | 0,495  |
| 2,1800  | 1,8200 | 2. 20. 50      | 16   |       | 0,951  | 2,5500  | 1,4500 | 1. 59. 34      | 57   |       | 0,473  |
| 2,1900  | 1,8100 | 2. 20. 34      | 18   |       | 0,945  | 2,5600  | 1,4400 | 1. 58. 37      | 59   |       | 0,450  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,2000  | 1,8000 | 2. 20. 16      | 18   |       | 0,939  | 2,5700  | 1,4300 | 1. 57. 38      | 60   |       | 0,426  |
| 2,2100  | 1,7900 | 2. 19. 58      | 18   |       | 0,933  | 2,5800  | 1,4200 | 1. 56. 38      | 62   |       | 0,402  |
| 2,2200  | 1,7800 | 2. 19. 40      | 20   |       | 0,926  | 2,5900  | 1,4100 | 1. 55. 36      | 64   |       | 0,376  |
| 2,2300  | 1,7700 | 2. 19. 20      | 21   |       | 0,919  | 2,6000  | 1,4000 | 1. 54. 32      | 65   |       | 0,350  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,2400  | 1,7600 | 2. 18. 59      | 22   |       | 0,912  | 2,6100  | 1,3900 | 1. 53. 27      | 67   |       | 0,323  |
| 2,2500  | 1,7500 | 2. 18. 37      | 22   |       | 0,904  | 2,6200  | 1,3800 | 1. 52. 20      | 69   |       | 0,295  |
| 2,2600  | 1,7400 | 2. 18. 15      | 24   |       | 0,896  | 2,6300  | 1,3700 | 1. 51. 11      | 71   |       | 0,265  |
| 2,2700  | 1,7300 | 2. 17. 51      | 25   |       | 0,887  | 2,6400  | 1,3600 | 1. 50. 0       | 72   |       | 0,235  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,2800  | 1,7200 | 2. 17. 26      | 25   |       | 0,878  | 2,6500  | 1,3500 | 1. 48. 48      | 75   |       | 0,204  |
| 2,2900  | 1,7100 | 2. 17. 1       | 27   |       | 0,869  | 2,6600  | 1,3400 | 1. 47. 33      | 76   |       | 0,172  |
| 2,3000  | 1,7000 | 2. 16. 34      | 27   |       | 0,860  | 2,6700  | 1,3300 | 1. 46. 17      | 79   |       | 0,138  |
| 2,3100  | 1,6900 | 2. 16. 7       | 29   |       | 0,850  | 2,6800  | 1,3200 | 1. 44. 58      | 81   |       | 0,103  |
|         |        |                |      |       |        |         |        |                |      |       |        |
| 2,3200  | 1,6800 | 2. 15. 38      | 29   |       | 0,839  | 2,6900  | 1,3100 | 1. 43. 37      | 83   |       | 0,066  |
| 2,3300  | 1,6700 | 2. 15. 9       | 31   |       | 0,829  | 2,7000  | 1,3000 | 1. 42. 14      | 85   |       | 0,028  |
| 2,3400  | 1,6600 | 2. 14. 38      | 31   |       | 0,818  | 2,7100  | 1,2900 | 1. 40. 49      | 88   |       | -0,012 |
|         |        |                |      |       | 0,806  |         |        |                |      |       |        |
| 2,3500  | 1,6500 | 2. 14. 7       | 33   |       | 0,794  | 2,7200  | 1,2800 | 1. 39. 21      | 90   |       | 0,053  |
| 2,3600  | 1,6400 | 2. 13. 34      | 34   |       | 0,782  | 2,7300  | 1,2700 | 1. 37. 51      | 93   |       | 0,096  |
| 2,3700  | 1,6300 | 2. 13. 0       |      |       |        | 2,7400  | 1,2600 | 1. 36. 18      |      |       | 0,141  |

The Number N serves for the Correction of the Semi-duration.



TABLE XLIX. Semi-duration.

| ARG. M. |         | Semi-duration. |      | Diff.  | N | ARG. M. |         | Semi-duration. |      | Diff. | N     |
|---------|---------|----------------|------|--------|---|---------|---------|----------------|------|-------|-------|
|         |         | H. M. S.       | SEC. |        |   |         |         | M. S.          | SEC. |       |       |
| 2,7400  | 1,2600  | 1. 36. 18      | 96   | -0,141 |   | 2,96500 | 1,03500 | 37. 33         | 32   | -     | 3,29  |
| 2,7500  | 1,2500  | 1. 34. 42      | 99   | 0,189  |   | 2,96600 | 1,03400 | 37. 1          | 32   |       | 3,35  |
| 2,7600  | 1,2400  | 1. 33. 3       | 102  | 0,239  |   | 2,96700 | 1,03300 | 36. 29         | 33   |       | 3,41  |
| 2,7700  | 1,2300  | 1. 31. 21      | 106  | 0,291  |   | 2,96800 | 1,03200 | 35. 56         | 34   |       | 3,48  |
| 2,7800  | 1,2200  | 1. 29. 35      | 108  | 0,346  |   | 2,96900 | 1,03100 | 35. 22         | 34   |       | 3,55  |
| 2,7900  | 1,2100  | 1. 27. 47      | 113  | 0,405  |   | 2,97000 | 1,03000 | 34. 48         | 34   |       | 3,63  |
| 2,8000  | 1,2000  | 1. 25. 54      | 117  | 0,467  |   | 2,97100 | 1,02900 | 34. 14         | 35   |       | 3,70  |
| 2,8100  | 1,1900  | 1. 23. 57      | 121  | 0,532  |   | 2,97200 | 1,02800 | 33. 39         | 36   |       | 3,79  |
| 2,8200  | 1,1800  | 1. 21. 56      | 125  | 0,602  |   | 2,97300 | 1,02700 | 33. 3          | 37   |       | 3,87  |
| 2,8300  | 1,1700  | 1. 19. 51      | 130  | 0,677  |   | 2,97400 | 1,02600 | 32. 26         | 37   |       | 3,96  |
| 2,8400  | 1,1600  | 1. 17. 41      | 136  | 0,758  |   | 2,97500 | 1,02500 | 31. 49         | 38   |       | 4,06  |
| 2,8500  | 1,1500  | 1. 15. 25      | 141  | 0,845  |   | 2,97600 | 1,02400 | 31. 11         | 39   |       | 4,16  |
| 2,8600  | 1,1400  | 1. 13. 4       | 149  | 0,939  |   | 2,97700 | 1,02300 | 30. 32         | 40   |       | 4,26  |
| 2,8700  | 1,1300  | 1. 10. 35      | 155  | 1,042  |   | 2,97800 | 1,02200 | 29. 52         | 41   |       | 4,38  |
| 2,8800  | 1,1200  | 1. 8. 0        | 163  | 1,155  |   | 2,97900 | 1,02100 | 29. 11         | 42   |       | 4,50  |
| 2,8900  | 1,1100  | 1. 5. 17       | 173  | 1,281  |   | 2,98000 | 1,02000 | 28. 29         | 42   |       | 4,63  |
| 2,9000  | 1,1000  | 1. 2. 24       | 183  | 1,422  |   | 2,98100 | 1,01900 | 27. 47         | 44   |       | 4,77  |
| 2,9100  | 1,0900  | 0. 59. 21      | 194  | 1,583  |   | 2,98200 | 1,01800 | 27. 3          | 46   |       | 4,92  |
| 2,9200  | 1,0800  | 0. 56. 7       | 210  | 1,768  |   | 2,98300 | 1,01700 | 26. 17         | 46   |       | 5,08  |
| 2,9300  | 1,0700  | 0. 52. 37      | 226  | 1,985  |   | 2,98400 | 1,01600 | 25. 31         | 49   |       | 5,26  |
| 2,9400  | 1,0600  | 0. 48. 51      | 249  | 2,249  |   | 2,98500 | 1,01500 | 24. 42         | 50   |       | 5,45  |
| 2,95000 | 1,05000 | 0. 44. 42      | 26   | 2,58   |   | 2,98600 | 1,01400 | 23. 52         | 52   |       | 5,66  |
| 2,95100 | 1,04900 | 0. 44. 16      | 27   | 2,62   |   | 2,98700 | 1,01300 | 23. 0          | 53   |       | 5,90  |
| 2,95200 | 1,04800 | 0. 43. 49      | 26   | 2,65   |   | 2,98800 | 1,01200 | 22. 7          | 57   |       | 6,17  |
| 2,95300 | 1,04700 | 0. 43. 23      | 27   | 2,69   |   | 2,98900 | 1,01100 | 21. 10         | 58   |       | 6,46  |
| 2,95400 | 1,04600 | 0. 42. 56      | 28   | 2,74   |   | 2,99000 | 1,01000 | 20. 12         | 62   |       | 6,81  |
| 2,95500 | 1,04500 | 0. 42. 28      | 28   | 2,78   |   | 2,99100 | 1,00900 | 19. 10         | 66   |       | 7,20  |
| 2,95600 | 1,04400 | 0. 42. 0       | 28   | 2,82   |   | 2,99200 | 1,00800 | 18. 4          | 69   |       | 7,67  |
| 2,95700 | 1,04300 | 0. 41. 32      | 29   | 2,87   |   | 2,99300 | 1,00700 | 16. 55         | 75   |       | 8,23  |
| 2,95800 | 1,04200 | 0. 41. 3       | 28   | 2,91   |   | 2,99400 | 1,00600 | 15. 40         | 82   |       | 8,92  |
| 2,95900 | 1,04100 | 0. 40. 35      | 30   | 2,95   |   | 2,99500 | 1,00500 | 14. 18         | 90   |       | 9,81  |
| 2,96000 | 1,04000 | 0. 40. 5       | 29   | 3,01   |   | 2,99600 | 1,00400 | 12. 48         | 103  |       | 11,01 |
| 2,96100 | 1,03900 | 0. 39. 36      | 31   | 3,06   |   | 2,99700 | 1,00300 | 11. 5          | 122  |       | 12,76 |
| 2,96200 | 1,03800 | 0. 39. 5       | 30   | 3,12   |   | 2,99800 | 1,00200 | 9. 3           | 169  |       | 15,69 |
| 2,96300 | 1,03700 | 0. 38. 35      | 30   | 3,17   |   | 2,99900 | 1,00100 | 6. 14          | 374  |       | 22,26 |
| 2,96400 | 1,03600 | 0. 38. 4       | 31   | 3,23   |   | 3,00000 | 1,00000 | 0. 0           |      |       | ∞     |
| 2,96500 | 1,03500 | 0. 37. 33      |      | 3,29   |   |         |         |                |      |       |       |



TABLE L. The Correction of the Semi-durations.

| ARGUMENT C. |      | Cor. | Number<br>X. | Diff. | ARGUMENT C. |      | Cor. | Number<br>X. | Diff. |
|-------------|------|------|--------------|-------|-------------|------|------|--------------|-------|
| +           | -    | SEC. | ±            |       | +           | -    | SEC. | ±            |       |
| 0           | 5000 | 63,2 | 0,01482      | 3     | 7500        | 7500 | 0,0  | 0,00000      | 93    |
| 100         | 4900 | 63,1 | 0,01479      | 9     | 7600        | 7400 | 4,0  | 0,00093      | 93    |
| 200         | 4800 | 62,7 | 0,01470      | 15    | 7700        | 7300 | 7,9  | 0,00186      | 92    |
| 300         | 4700 | 62,1 | 0,01455      | 20    | 7800        | 7200 | 11,8 | 0,00278      | 90    |
| 400         | 4600 | 61,3 | 0,01435      | 26    | 7900        | 7100 | 15,7 | 0,00368      | 89    |
| 500         | 4500 | 60,2 | 0,01409      | 32    | 8000        | 7000 | 19,5 | 0,00457      | 88    |
| 600         | 4400 | 58,8 | 0,01377      | 37    | 8100        | 6900 | 23,3 | 0,00545      | 86    |
| 700         | 4300 | 57,2 | 0,01340      | 42    | 8200        | 6800 | 26,9 | 0,00631      | 84    |
| 800         | 4200 | 55,4 | 0,01298      | 47    | 8300        | 6700 | 30,5 | 0,00715      | 80    |
| 900         | 4100 | 53,4 | 0,01251      | 52    | 8400        | 6600 | 33,9 | 0,00795      | 76    |
| 1000        | 4000 | 51,2 | 0,01199      | 57    | 8500        | 6500 | 37,2 | 0,00871      | 73    |
| 1100        | 3900 | 48,7 | 0,01142      | 62    | 8600        | 6400 | 40,3 | 0,00944      | 70    |
| 1200        | 3800 | 46,1 | 0,01080      | 66    | 8700        | 6300 | 43,3 | 0,01014      | 66    |
| 1300        | 3700 | 43,3 | 0,01014      | 70    | 8800        | 6200 | 46,1 | 0,01080      | 62    |
| 1400        | 3600 | 40,3 | 0,00944      | 73    | 8900        | 6100 | 48,7 | 0,01142      | 57    |
| 1500        | 3500 | 37,2 | 0,00871      | 76    | 9000        | 6000 | 51,2 | 0,01199      | 52    |
| 1600        | 3400 | 33,9 | 0,00795      | 80    | 9100        | 5900 | 53,4 | 0,01251      | 47    |
| 1700        | 3300 | 30,5 | 0,00715      | 84    | 9200        | 5800 | 55,4 | 0,01298      | 42    |
| 1800        | 3200 | 26,9 | 0,00631      | 86    | 9300        | 5700 | 57,2 | 0,01340      | 37    |
| 1900        | 3100 | 23,3 | 0,00545      | 88    | 9400        | 5600 | 58,8 | 0,01377      | 32    |
| 2000        | 3000 | 19,5 | 0,00457      | 89    | 9500        | 5500 | 60,2 | 0,01409      | 26    |
| 2100        | 2900 | 15,7 | 0,00368      | 90    | 9600        | 5400 | 61,3 | 0,01435      | 20    |
| 2200        | 2800 | 11,8 | 0,00278      | 92    | 9700        | 5300 | 62,1 | 0,01455      | 15    |
| 2300        | 2700 | 7,9  | 0,00186      | 93    | 9800        | 5200 | 62,7 | 0,01470      | 9     |
| 2400        | 2600 | 4,0  | 0,00093      | 93    | 9900        | 5100 | 63,1 | 0,01479      | 3     |
| 2500        | 2500 | 0,0  | 0,00000      |       | 0           | 5000 | 63,2 | 0,01482      |       |

The Number X has the Sign — in the first Column of the Argument, and + in the second ; it has therefore a different Sign from its Argument.

The Number X is only used with the next Table of the Semi-duration, and then the Correction in this Table is not used.



TABLE LI. Another Table of the Semi-duration, to be used near the Limits.

| ARG. Q. | Semi-duration. |    | Diff. |  | ARG. Q. | Semi-duration. |    | Diff. |
|---------|----------------|----|-------|--|---------|----------------|----|-------|
|         | M.             | S. |       |  |         | M.             | S. |       |
| 0,0000  | 0.             | 0  | 86    |  | 0,0230  | 21.            | 43 | 28    |
| 0,0001  | 1.             | 26 | 35    |  | 0,0240  | 22.            | 11 | 27    |
| 0,0002  | 2.             | 1  | 28    |  | 0,0250  | 22.            | 38 | 27    |
| 0,0003  | 2.             | 29 | 23    |  | 0,0260  | 23.            | 5  | 27    |
| 0,0004  | 2.             | 52 | 20    |  | 0,0270  | 23.            | 32 | 25    |
| 0,0005  | 3.             | 12 | 18    |  | 0,0280  | 23.            | 57 | 26    |
| 0,0006  | 3.             | 30 | 17    |  | 0,0290  | 24.            | 23 | 25    |
| 0,0007  | 3.             | 47 | 16    |  | 0,0300  | 24.            | 48 | 24    |
| 0,0008  | 4.             | 3  | 15    |  | 0,0310  | 25.            | 12 | 25    |
| 0,0009  | 4.             | 18 | 14    |  | 0,0320  | 25.            | 37 | 23    |
| 0,0010  | 4.             | 32 | 112   |  | 0,0330  | 26.            | 0  | 24    |
| 0,0020  | 6.             | 24 | 86    |  | 0,0340  | 26.            | 24 | 23    |
| 0,0030  | 7.             | 50 | 73    |  | 0,0350  | 26.            | 47 | 23    |
| 0,0040  | 9.             | 3  | 64    |  | 0,0360  | 27.            | 10 | 22    |
| 0,0050  | 10.            | 7  | 58    |  | 0,0370  | 27.            | 32 | 22    |
| 0,0060  | 11.            | 5  | 54    |  | 0,0380  | 27.            | 54 | 22    |
| 0,0070  | 11.            | 59 | 49    |  | 0,0390  | 28.            | 16 | 22    |
| 0,0080  | 12.            | 48 | 47    |  | 0,0400  | 28.            | 38 | 21    |
| 0,0090  | 13.            | 35 | 44    |  | 0,0410  | 28.            | 59 | 21    |
| 0,0100  | 14.            | 19 | 42    |  | 0,0420  | 29.            | 20 | 21    |
| 0,0110  | 15.            | 1  | 40    |  | 0,0430  | 29.            | 41 | 21    |
| 0,0120  | 15.            | 41 | 38    |  | 0,0440  | 30.            | 2  | 20    |
| 0,0130  | 16.            | 19 | 37    |  | 0,0450  | 30.            | 22 | 20    |
| 0,0140  | 16.            | 56 | 36    |  | 0,0460  | 30.            | 42 | 20    |
| 0,0150  | 17.            | 32 | 34    |  | 0,0470  | 31.            | 2  | 20    |
| 0,0160  | 18.            | 6  | 34    |  | 0,0480  | 31.            | 22 | 19    |
| 0,0170  | 18.            | 40 | 32    |  | 0,0490  | 31.            | 41 | 20    |
| 0,0180  | 19.            | 12 | 32    |  | 0,0500  | 32.            | 1  | 19    |
| 0,0190  | 19.            | 44 | 31    |  | 0,0510  | 32.            | 20 | 19    |
| 0,0200  | 20.            | 15 | 29    |  | 0,0520  | 32.            | 39 | 18    |
| 0,0210  | 20.            | 44 | 30    |  | 0,0530  | 32.            | 57 | 19    |
| 0,0220  | 21.            | 14 | 29    |  | 0,0540  | 33.            | 16 | 19    |
| 0,0230  | 21.            | 43 |       |  | 0,0550  | 33.            | 35 |       |



# ERRATA AND ADDENDA.

## VOL. I.

PAGE 16. line 15. *for* diminished, *read* increased; and line 16, *for* increased, *read* diminished.

..... 23. .... 20. *for* 10<sup>h</sup>. 38'. 8", *read* 10<sup>h</sup>. 36'. 8".

..... — ..... 21. *for* 38'. 20" = 0,6388, *read* 37'. 40" = 0,6277; and *for* 6'. 16", *read* 6'. 10".

..... — ..... 22. *for* 4<sup>h</sup>. 2'. 9", *read* 4<sup>h</sup>. 2'. 3".

..... 24. .... 21. *for* 56", *read* 56'. And in the same Example, the daily variation of the Sun's Right Ascension, with which you enter the Requisite Table XXIII. is taken from the Nautical Almanack.

..... 37. .... 5. *for* VII, *read* IX; line 6. *for* VIII, *read* X; line 13. *for* VII, *read* IX; line 14. *for* VIII, *read* X.

..... 62. .... 19. *dele*, "and is therefore =  $\frac{vr}{\cos. va} \times \text{sum } (S)$  of the sines of the two hour-angles."

..... 211. .... At the end of Art. 368. *add*: Her libration in latitude is about 10°.

..... 324. line 15. *for* Sun's, *read* Star's.

..... 330. .... To Article 523, add the following Rules:

### *For the Aberration in North Polar Distance.*

$$\begin{array}{l} * \text{ in first or last quad. of longitude, } \left\{ \begin{array}{l} \text{with N. Lat. . . .} \\ \text{with S. Lat. . . .} \end{array} \right\} * \text{'s Long. } \left\{ \begin{array}{l} - \mathcal{Z} - 3^s \\ + \mathcal{Z} + 3 \\ + \mathcal{Z} - 3 \\ + 3^s - \mathcal{Z} \end{array} \right\} = X. \\ * \text{ in second or third quad. of longitude, } \left\{ \begin{array}{l} \text{with N. Lat. . . .} \\ \text{with S. Lat. . . .} \end{array} \right\} \end{array}$$

Let  $S$  = the Sun's Longitude, and take  $X \sim S$  so as to be *less* than 6°. Then the aberration in N. P. D. =  $-M \times \cos. (X \sim S)$ ; and if  $X \sim S$  be *less* than 3°, the aberration is  $-$ , if *greater* than 3°, it is  $+$ .

### *For the Aberration in Right Ascension.*

$$\begin{array}{l} * \text{ in first or last quad. of longitude, } \left\{ \begin{array}{l} \text{with N. Lat. . . .} \\ \text{with S. Lat. . . .} \end{array} \right\} * \text{'s Long. } \left\{ \begin{array}{l} + \mathcal{Z} - 3^s \\ + 3^s - \mathcal{Z} \\ + 3^s - \mathcal{Z} \\ + \mathcal{Z} - 3^s \end{array} \right\} = X. \\ * \text{ in second or third quad. of longitude, } \left\{ \begin{array}{l} \text{with N. Lat. . . .} \\ \text{with S. Lat. . . .} \end{array} \right\} \end{array}$$

Take  $X \sim S$  so as to be *less* than 6°. Then the Aberration in Right Ascension =  $-M \times \cos. (X \sim S)$ ; and if  $X \sim S$  be *less* than 3°, the Aberration is  $-$ ; if *greater* than 3°, it is  $+$ .

Page 381 to line 2. *add*: This is upon supposition that the first eclipse is a Solar one; but if the first eclipse should be that of the Moon, and very near the beginning of the year, there may be three eclipses of the Moon, and four of the Sun.

..... 384. .... 33. *for* second, *read* third.

..... 419. .... 27. *for* after or before, *read* before or after.

..... 431. .... 19. *for*  $\frac{2}{3}$ , *read*  $\frac{3}{2}$ .



# ERRATA AND ADDENDA.

Page 499. line 31. *for* two whitish spots, *read* a white and a black spot; line 22. *for* which, *read* the former; and *for* resemble, *read* resembles; line 33. *for* they appear, *read* it appears.

..... 505. .... Art. 72. It is not here to be understood, that there *can* be 13 points upon the surface of a sphere, equidistant from each other and from the center, but only that 12 equidistant points will be a little further from each other than from the center; so that if these points were reduced to the same distance as from the center, there would be left a space greater than the other spaces, into which you might put another point, but not under the circumstances of the rest.

..... 524. line 10. *for* 13°. 29'. 42", *read* 13°. 20'. 42".

..... 527. .... 21. *for* 123°. 50'. 16", *read* 134°. 23'. 30".

In Figure XXII. *for* G, *read* C.

—— CCXL. *for* C, *read* c; and draw *cd* perpendicular to *SE*.

Since the publication of the last Volumn, four new primary Planets have been discovered: The first, called *Ceres*, was discovered by M. PIAZZI at *Palermo*, Jan. 1, 1801; the second, called *Pallas*, was discovered by Dr. OLBERS at *Bremen*, March 28, 1802; the third, called *Juno*, was discovered by M. HARDING at *Lilienthel*, September 1, 1804; and the fourth, called *Vesta*, was discovered by Dr. OLBERS, March 29, 1807. The following Table contains the Elements of the Orbits of the three first; the orbit of the fourth is not yet computed.

| Elements.                                                        | ♂ <i>Ceres</i> . | ♀ <i>Pallas</i> . | * <i>Juno</i> . |
|------------------------------------------------------------------|------------------|-------------------|-----------------|
| Epochs of mean long. 1805, for }<br>the meridian of Seeberg .. } | 30. 12. 7,7      | 18. 13. 1,4       | 42. 36. 36      |
| Longitude of aphelion . . . . .                                  | 326. 28. 4,4     | 301. 3. 24,3      | 233. 11. 40     |
| Longitude of ascending node . . . . .                            | 81. 0. 41        | 172. 30. 47       | 171. 4. 15      |
| Inclination of the orbit . . . . .                               | 10. 37. 36       | 34. 37. 43        | 13. 3. 38       |
| Excentricity . . . . .                                           | 0,0784699        | 0,2461007         | 0,254236        |
| Logarithm of mean distance . . . . .                             | 0,442004         | 0,4417647         | 0,4256078       |
| Mean diurnal tropical motion . . . . .                           | 771",0524        | 771",6802         | 815",959        |

Dr. HERSCHEL makes the diameter of *Pallas* to be not more than 147 miles; and that of *Ceres*, 161,6 miles. *Phil. Trans.* 1802. The other two are found to be also extremely small, but their diameters are not yet ascertained.

## VOL. II.

Page 27. .... *Begin* Art. 871. *thus*: The second term becomes a maximum at 90° from the apsides; the third term at the octants from the apsides; the fourth term at 30° from the apsides. But as the first term is the principal one, the &c. &c.

..... 41. line 15. *for* quadratures, *read* the octants.

..... 122. .... the paragraph in this page is from Dr. BRADLEY.

..... 143. .... 17. *for* 0,1245, *read* ,01245.

..... 159. .... 10. *for* first year, *read* first 100 years.

..... 167. .... 6. *for*  $Ft^2$ , *read*  $ft^2$ .

..... 174. .... 10. *for* C, *read* c.

Page



# ERRATA AND ADDENDA.

Page 176. line 5. from the bottom, for  $\frac{1}{2} \cos. Z$ , read  $\frac{1}{2} + \frac{1}{2} \cos. Z$ .

.... 204. .... 4. for  $\times \frac{5}{2} w^3$ , read  $+\frac{5}{2} w^3$ .

.... 217. .... 7. for sine, read cosines; line 10. for cosines, read sines.

.... 242. .... 9. for  $\frac{61}{38}$ , read  $\frac{61}{48}$ ; line 15. for 22, 14, 5, read - 22, - 14, - 5; make the corresponding corrections below, and we get  $y = 7^\circ. 36'$ .

.... 434. .... Ex. for  $78^\circ$ , read  $74^\circ$ .

.... 471. line 12. for 5,5563, read 3,5563.

## VOL. III.

To the second Note, p. 3. *Introduction*, add: — The value of  $M$  for the hours is best ascertained by taking it's increase for several days. For instance: the increase for 12 days, or 288 hours, is 435 (Table IV. for January); hence,  $288 : 12 :: 435 : 18$  the increase for 12 hours. Thus we may correct our Author's Table V.; but this was not attended to till after the Table was printed off. The equations, however, are not sensibly affected by it. The epochs being changed by 12 hours, we added 17 to the epochs of  $M$ , to reduce them to Greenwich; more correctly it is 18, on which account we may add 1 to the values of  $M$  in Table I, if it should on any occasion be thought necessary.

Page 40. line 37. for first, read latter.

.... (28.) in the Column last but one, between 0,0 and 0,0 put —, and at the Head put  $\pm$ .

.... (178.) ..... at the Head of Column 12 put  $V^\circ$ .

.... (184.) ..... at the Head of Table LIII. for ARGUMENT. Longitude, read Argument XXVII. The Author has given no Argument to this Table; but as the equation which he has given, corresponds to Argument XXVII, we have assigned to it that Argument.

.... 77. .... TABLE XVII. for Argument  $XI = VII + VIII$ , read  $VI + VIII$ .

.... 103. .... for Table XV, read Table XIV; and for Jupiter's, read Saturn's.

In the Tables of Jupiter's Satellites, at the Head of Tables X. XIX. XXIX. for action, read perturbations.

M. DE LA PLACE has determined the masses of the Planets, Moon, and Jupiter's Satellites, as follows:

The Sun being unity, the mass of

$$\text{Venus} - - - - - = \frac{1}{356632}.$$

$$\text{Mars} - - - - - = \frac{1}{2546320}.$$

$$\text{Jupiter} - - - - - = \frac{1}{1067,09}.$$

$$\text{Saturn} - - - - - = \frac{1}{3534,08}.$$

The mass of the Earth being unity, that of the Moon is  $\frac{1}{68,5}$ .

The mass of Jupiter being unity, that of the

$$\text{First Satellite} - - - = 0,0000173281.$$

$$\text{Second Satellite} - - = 0,0000232355.$$

$$\text{Third Satellite} - - - = 0,0000884972.$$

$$\text{Fourth Satellite} - - - = 0,0000426591.$$



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